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NEWS 32	Apr 14	MEDLINE Reload
NEWS 33	Apr 17	Polymer searching in REGISTRY enhanced
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FILE 'HOME' ENTERED AT 10:31:27 ON 23 APR 2003

=> file uspatfull

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FILE 'USPATFULL' ENTERED AT 10:31:46 ON 23 APR 2003
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FILE COVERS 1971 TO PATENT PUBLICATION DATE: 22 Apr 2003 (20030422/PD)
FILE LAST UPDATED: 22 Apr 2003 (20030422/ED)
HIGHEST GRANTED PATENT NUMBER: US6553568
HIGHEST APPLICATION PUBLICATION NUMBER: US2003074707
CA INDEXING IS CURRENT THROUGH 22 Apr 2003 (20030422/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 22 Apr 2003 (20030422/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2003
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2003

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>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s skin and (vitamin A and Vitamin c and vitamind and vitamin e and vitamin .sub.3)
162870 SKIN
29053 VITAMIN
3437310 A
7731 VITAMIN A

```
                (VITAMIN(W)A)
        29053 VITAMIN
      1896340 C
         6092 VITAMIN C
                (VITAMIN(W)C)
            8 VITAMIND
        29053 VITAMIN
      2099612 E
         9753 VITAMIN E
                (VITAMIN(W)E)
        29053 VITAMIN
      1347524 SUB
      3416035 3
            0 VITAMIN .SUB.3
                (VITAMIN(W)SUB(W)3)
L1          0 SKIN AND (VITAMIN A AND VITAMIN C AND VITAMIND AND VITAMIN E
              AND VITAMIN .SUB.3)

=> s skin and (vitamin A and Vitamin c and vitamin d and vitamin e and vitamin B
.sub.3)
       162870 SKIN
        29053 VITAMIN
      3437310 A
         7731 VITAMIN A
                (VITAMIN(W)A)
        29053 VITAMIN
      1896340 C
         6092 VITAMIN C
                (VITAMIN(W)C)
        29053 VITAMIN
      1423718 D
         5660 VITAMIN D
                (VITAMIN(W)D)
        29053 VITAMIN
      2099612 E
         9753 VITAMIN E
                (VITAMIN(W)E)
        29053 VITAMIN
      1737653 B
      1347524 SUB
      3416035 3
          203 VITAMIN B .SUB.3
                (VITAMIN(W)B(W)SUB(W)3)
L2           75 SKIN AND (VITAMIN A AND VITAMIN C AND VITAMIN D AND VITAMIN E
              AND VITAMIN B .SUB.3)

=> s l2 and pd <2000
      2605423 PD <2000
                (PD<20000000)
L3          17 L2 AND PD <2000

=> d l3 1-17

L3   ANSWER 1 OF 17  USPATFULL
AN     2000:34224  USPATFULL
TI     Dietary food enhancement agent
IN     Bangs, William E., Philadelphia, PA, United States
       Khoo, Chor San Heng, Mt. Laurel, NJ, United States
       Ko, Sandy, Abington, PA, United States
PA     Campbell Soup Company, Camden, NJ, United States (U.S. corporation)
PI     US 6039978              20000321
       WO 9639053  19961212                                        <--
```

AI US 1996-716421 19960920 (8)
WO 1996-US10225 19960606
19960920 PCT 371 date
19960920 PCT 102(e) date
RLI Continuation-in-part of Ser. No. US 1995-471202, filed on 6 Jun 1995, now abandoned
DT Utility
FS Granted
LN.CNT 3160
INCL INCLM: 424/489.000
INCLS: 426/072.000; 426/073.000; 426/074.000; 514/905.000
NCL NCLM: 424/489.000
NCLS: 426/072.000; 426/073.000; 426/074.000; 514/905.000
IC [7]
ICM: A61K009-14
ICS: A23L001-303; A23L001-304
EXF 426/72; 426/73; 426/74; 514/904; 514/905; 424/489
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 2 OF 17 USPATFULL
AN 1999:155678 USPATFULL
TI Therapeutic system for dietary health management
IN Khoo, Chor San Heng, Mt. Laurel, NJ, United States
MacNair, R. David, King of Prussia, PA, United States
PA Campbell Soup Company, Camden, NJ, United States (U.S. corporation)
PI US 5994295 19991130 <--
AI US 1997-927076 19970910 (8)
RLI Continuation of Ser. No. US 1995-466893, filed on 6 Jun 1995, now abandoned
DT Utility
FS Granted
LN.CNT 3239
INCL INCLM: 514/002.000
INCLS: 514/023.000; 514/558.000; 514/560.000; 514/533.000
NCL NCLM: 514/002.000
NCLS: 514/023.000; 514/533.000; 514/558.000; 514/560.000
IC [6]
ICM: A61K038-00
ICS: A61K031-70; A61K031-20; A61K031-235
EXF 514/2; 514/23; 514/558; 514/560; 514/533
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 3 OF 17 USPATFULL
AN 1999:137208 USPATFULL
TI Therapeutic system for dietary health management
IN Khoo, Chor San Heng, Mt. Laurel, NJ, United States
MacNair, R. David C., King of Prussia, PA, United States
PA Campbell Soup Company, Camden, NJ, United States (U.S. corporation)
PI US 5977059 19991102 <--
AI US 1997-926432 19970910 (8)
RLI Division of Ser. No. US 1995-466893, filed on 6 Jun 1995, now abandoned
DT Utility
FS Granted
LN.CNT 3081
INCL INCLM: 514/002.000
INCLS: 514/023.000; 514/558.000; 514/560.000; 514/533.000
NCL NCLM: 514/002.000
NCLS: 514/023.000; 514/533.000; 514/558.000; 514/560.000
IC [6]
ICM: A61K038-00
ICS: A61K031-70; A61K031-20; A61K031-235
EXF 514/2; 514/23; 514/558; 514/560; 514/533

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 4 OF 17 USPATFULL
AN 1999:136663 USPATFULL
TI UV protection compositions
IN Robinson, Larry Richard, Loveland, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5976513 19991102 <--
AI US 1999-264139 19990305 (9)
RLI Continuation-in-part of Ser. No. US 1998-174225, filed on 16 Oct 1998, now abandoned
DT Utility
FS Granted
LN.CNT 906
INCL INCLM: 424/059.000
INCLS: 424/060.000; 424/400.000; 424/401.000
NCL NCLM: 424/059.000
NCLS: 424/060.000; 424/400.000; 424/401.000
IC [6]
ICM: A61K007-42
ICS: A61K007-00
EXF 424/59; 424/60; 424/400; 424/401
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 5 OF 17 USPATFULL
AN 1999:132881 USPATFULL
TI Pharmaceutical compositions and methods for improving wrinkles and other **skin** conditions
IN Murad, Howard, 4316 Marina City Dr., Marina del Rey, CA, United States 90292
PI US 5972999 19991026 <--
AI US 1998-146554 19980903 (9)
RLI Continuation of Ser. No. US 1997-787358, filed on 22 Jan 1997, now patented, Pat. No. US 5804597
DT Utility
FS Granted
LN.CNT 1077
INCL INCLM: 514/474.000
INCLS: 514/557.000; 514/062.000; 514/054.000; 514/801.000; 424/417.000
NCL NCLM: 514/474.000
NCLS: 424/417.000; 514/054.000; 514/062.000; 514/557.000; 514/801.000
IC [6]
ICM: A61K031-715
ICS: A61K031-34; A61K031-19
EXF 514/474; 514/557; 514/801; 514/62; 514/54; 424/417
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 6 OF 17 USPATFULL
AN 1999:132208 USPATFULL
TI UV protection compositions
IN Robinson, Larry Richard, Loveland, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5972316 19991026 <--
AI US 1999-263017 19990305 (9)
RLI Continuation-in-part of Ser. No. US 1998-174307, filed on 16 Oct 1998, now abandoned
DT Utility
FS Granted
LN.CNT 893
INCL INCLM: 424/059.000

INCLS: 424/060.000; 424/400.000; 424/401.000
NCL NCLM: 424/059.000
NCLS: 424/060.000; 424/400.000; 424/401.000
IC [6]
ICM: A61K007-42
ICS: A61K007-00
EXF 424/59; 424/60; 424/400; 424/401
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 7 OF 17 USPATFULL
AN 1999:128104 USPATFULL
TI UV protection compositions
IN Robinson, Larry Richard, Loveland, OH, United States
PA The Procter & Gamble Company, Cincinnati, OH, United States (U.S. corporation)
PI US 5968485 19991019 <--
AI US 1999-263673 19990305 (9)
RLI Continuation-in-part of Ser. No. US 1998-174274, filed on 16 Oct 1998, now abandoned
DT Utility
FS Granted
LN.CNT 903
INCL INCLM: 424/059.000
INCLS: 424/060.000; 424/400.000; 424/401.000
NCL NCLM: 424/059.000
NCLS: 424/060.000; 424/400.000; 424/401.000
IC [6]
ICM: A61K007-42
ICS: A61K007-00
EXF 424/59; 424/60; 424/400; 424/401
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 8 OF 17 USPATFULL
AN 1999:121419 USPATFULL
TI Pharmaceutical compositions and methods for treating acne
IN Murad, Howard, 4316 Marina City Dr., Marina del Rey, CA, United States 90292
PI US 5962517 19991005 <--
AI US 1998-16800 19980130 (9)
PRAI US 1997-36825P 19970131 (60)
DT Utility
FS Granted
LN.CNT 960
INCL INCLM: 514/474.000
INCLS: 514/557.000; 514/801.000; 514/474.000; 514/062.000; 514/054.000; 514/859.000; 514/188.000; 424/417.000
NCL NCLM: 514/474.000
NCLS: 424/417.000; 514/054.000; 514/062.000; 514/188.000; 514/557.000; 514/801.000; 514/859.000
IC [6]
ICM: A61K031-715
ICS: A61K031-34; A61K031-19
EXF 514/188; 514/859; 514/310; 514/557; 514/801; 514/474; 514/62; 514/54; 424/417
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 9 OF 17 USPATFULL
AN 1998:108425 USPATFULL
TI Pharmaceutical compositions and methods for improving wrinkles and other **skin** conditions
IN Murad, Howard, 4316 Marina City Dr., Marina del Rey, CA, United States 90292

PI US 5804594 19980908 <--
AI US 1997-787358 19970122 (8)
DT Utility
FS Granted
LN.CNT 1066
INCL INCLM: 514/474.000
INCLS: 514/557.000; 514/801.000; 514/474.000; 514/062.000; 514/054.000; 424/417.000
NCL NCLM: 514/474.000
NCLS: 424/417.000; 514/054.000; 514/062.000; 514/557.000; 514/801.000
IC [6]
ICM: A61K031-715
ICS: A61K031-34; A61K031-19
EXF 514/54; 514/62; 514/474; 514/557; 514/801; 424/417
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 10 OF 17 USPATFULL
AN 1998:27757 USPATFULL
TI **Skin** protection, fragrance enhancing and vitamin delivery composition
IN Pinzon, Carlos, Hackensack, NJ, United States
PA L'Oreal, S.A., Paris, France (non-U.S. corporation)
PI US 5728372 19980317 <--
AI US 1996-643110 19960430 (8)
RLI Continuation-in-part of Ser. No. US 1996-641067, filed on 29 Apr 1996, now abandoned
DT Utility
FS Granted
LN.CNT 671
INCL INCLM: 424/059.000
INCLS: 424/060.000; 424/400.000; 424/401.000
NCL NCLM: 424/059.000
NCLS: 424/060.000; 424/400.000; 424/401.000
IC [6]
ICM: A61K007-42
ICS: A61K007-00
EXF 424/59; 424/60; 424/400; 424/401
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 11 OF 17 USPATFULL
AN 1998:27756 USPATFULL
TI **Skin** protection, fragrance enhancing and vitamin delivery composition
IN Pinzon, Carlos, Hackensack, NJ, United States
Thau, Paul, Berkley Heights, NJ, United States
PA L'Oreal, S.A., Paris, France (non-U.S. corporation)
PI US 5728371 19980317 <--
AI US 1996-643075 19960430 (8)
RLI Continuation-in-part of Ser. No. US 1996-641066, filed on 29 Apr 1996, now abandoned
DT Utility
FS Granted
LN.CNT 596
INCL INCLM: 424/059.000
INCLS: 424/060.000; 424/400.000; 424/401.000
NCL NCLM: 424/059.000
NCLS: 424/060.000; 424/400.000; 424/401.000
IC [6]
ICM: A61K007-42
ICS: A61K007-00
EXF 424/59; 424/60; 424/400; 424/401
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 12 OF 17 USPATFULL
AN 97:68148 USPATFULL
TI Personal product compositions comprising heteroatom containing alkyl aldonamide compounds
IN Vermeer, Robert, Nutley, NJ, United States
PA Lever Brothers Company, Division of Conopco, Inc., New York, NY, United States (U.S. corporation)
PI US 5653970 19970805 <--
AI US 1994-352008 19941208 (8)
DT Utility
FS Granted
LN.CNT 6060
INCL INCLM: 424/070.240
      INCLS: 424/070.100; 514/847.000; 510/126.000; 510/135.000
NCL NCLM: 424/070.240
      NCLS: 424/070.100; 510/126.000; 510/135.000; 514/847.000
IC [6]
      ICM: A61K007-07
      ICS: A61K007-075
EXF 424/401; 424/70.31; 424/70.19; 424/70.24
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 13 OF 17 USPATFULL
AN 97:53932 USPATFULL
TI Hair care compositions comprising heteroatom containing alkyl aldonamide compounds
IN Vermeer, Robert, Nutley, NJ, United States
PA Lever Brothers Company, Division of Conopco, Inc., New York, NY, United States (U.S. corporation)
PI US 5641480 19970624 <--
AI US 1994-352309 19941208 (8)
DT Utility
FS Granted
LN.CNT 5444
INCL INCLM: 424/070.240
      INCLS: 424/070.100
NCL NCLM: 424/070.240
      NCLS: 424/070.100
IC [6]
      ICM: A61K007-07
      ICS: A61K007-075
EXF 424/70.1; 424/70.13; 424/70.17; 424/70.24
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 14 OF 17 USPATFULL
AN 97:51727 USPATFULL
TI Method for determining diet program effectiveness
IN Chait, Allen, Seattle, WA, United States
      Hatton, Dan, Portland, OR, United States
      Haynes, R. Brian, Dundas, Canada
      Khoo, Chor San Heng, Mt. Laurel, NJ, United States
      Kris-Etherton, Penny, State College, PA, United States
      Macnair, R. David C., King of Prussia, PA, United States
      McCarron, David, Portland, OR, United States
      Metz, Jill, Portland, OR, United States
      Oparil, Suzanne, Birmingham, AL, United States
      Pi-Sunyer, Xavier, New York, NY, United States
      Resnick, Larry, West Bloomfield, MI, United States
      Stern, Judith S., Lafayette, CA, United States
      Ziegler, Paula J., Cherry Hill, NJ, United States
PA Campbell Soup Company, Camden, NJ, United States (U.S. corporation)

PI US 5639471 19970617 <--
AI US 1995-469516 19950606 (8)
DT Utility
FS Granted
LN.CNT 3163
INCL INCLM: 424/439.000
INCLS: 424/400.000
NCL NCLM: 424/439.000
NCLS: 424/400.000
IC [6]
ICM: A61K047-00
EXF 424/439; 424/400; 424/440
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 15 OF 17 USPATFULL
AN 95:49940 USPATFULL
TI Methods of treatment and devices employing lithium salts
IN Horrobin, David F., Haslemere, United Kingdom
PA Efamol Holding PLC, Surrey, United Kingdom (non-U.S. corporation)
PI US 5422115 19950606 <--
AI US 1992-963597 19921020 (7)
RLI Division of Ser. No. US 1989-329881, filed on 28 Mar 1989, now abandoned which is a continuation of Ser. No. US 1988-182291, filed on 15 Apr 1988, now abandoned
PRAI GB 1987-9892 19870427
GB 1987-19988 19870825
GB 1988-2016 19880129
DT Utility
FS Granted
LN.CNT 974
INCL INCLM: 424/422.000
INCLS: 424/474.000; 424/475.000; 424/480.000; 424/482.000; 424/423.000; 424/436.000; 514/810.000; 514/821.000; 514/866.000; 514/886.000; 514/825.000; 514/885.000; 514/824.000; 514/931.000; 514/934.000
NCL NCLM: 424/422.000
NCLS: 424/423.000; 424/436.000; 424/474.000; 424/475.000; 424/480.000; 424/482.000; 514/810.000; 514/821.000; 514/824.000; 514/825.000; 514/866.000; 514/885.000; 514/886.000; 514/931.000; 514/934.000
IC [6]
ICM: A61K009-28
ICS: A61K031-20
EXF 424/464; 424/465; 424/474; 424/475; 424/480; 424/482; 424/422; 514/558
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 16 OF 17 USPATFULL
AN 93:84885 USPATFULL
TI Lithium salt-containing pharmaceutical compositions
IN Horrobin, David F., Haslemere, United Kingdom
PA Scotia Holdings PLC, Surrey, United Kingdom (non-U.S. corporation)
PI US 5252333 19931012 <--
AI US 1989-329881 19890328 (7)
RLI Continuation of Ser. No. US 1988-182291, filed on 15 Apr 1988, now abandoned
PRAI GB 1987-9892 19870427
GB 1987-19988 19870825
GB 1988-2016 19880129
DT Utility
FS Granted
LN.CNT 967
INCL INCLM: 424/422.000
INCLS: 424/445.000; 424/449.000; 424/474.000; 424/463.000; 424/490.000; 514/905.000; 514/943.000

NCL NCLM: 424/422.000
NCLS: 424/445.000; 424/449.000; 424/463.000; 424/474.000; 424/490.000; 514/905.000; 514/943.000
IC [5]
ICM: A61F013-00
ICS: A61K009-00; A61K031-20
EXF 424/430; 424/445; 424/449; 424/474; 514/560; 514/60; 514/558
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 17 OF 17 USPATFULL
AN 93:31203 USPATFULL
TI Hypoallergenic milk products from natural and/or synthetic components and process of making
IN Girsh, Leonard S., South Palm Beach, FL, United States
PA Immuno Path Profile, Inc., Melrose Park, PA, United States (U.S. corporation)
PI US 5204134 19930420 <--
AI US 1991-754872 19910904 (7)
RLI Continuation-in-part of Ser. No. US 1990-562777, filed on 3 Aug 1990, now patented, Pat. No. US 5064674 which is a continuation-in-part of Ser. No. US 1989-297451, filed on 13 Jan 1989, now patented, Pat. No. US 4954361
DT Utility
FS Granted
LN.CNT 1314
INCL INCLM: 426/580.000
INCLS: 426/491.000; 426/583.000; 426/585.000; 426/656.000; 426/660.000; 426/801.000
NCL NCLM: 426/580.000
NCLS: 426/491.000; 426/583.000; 426/585.000; 426/656.000; 426/660.000; 426/801.000
IC [5]
ICM: A23C009-142
ICS: A23C009-20
EXF 426/491; 426/580; 426/583; 426/585; 426/656; 426/660; 426/801

=> d l3 1-17 kwic

L3 ANSWER 1 OF 17 USPATFULL
PI US 6039978 20000321
WO 9639053 19961212 <--
AB The invention is a dietary food enhancement agent for fortifying food products. The agent includes a premixed combination of **Vitamin A**, Vitamin B.sub.1, Vitamin B.sub.2, Vitamin B.sub.6, Vitamin B.sub.12, **Vitamin C**, **Vitamin D**, **Vitamin E**, Vitamin K, Biotin, Calcium, Copper, Folic Acid, Iodine, Iron, Magnesium, Manganese, Pantothenic Acid, Phosphorus, and Zinc. Further, calcium may be. . .
SUMM The NCI also suggests that diets rich in foods containing **Vitamin C** and **Vitamin A** from fruits and vegetables may also reduce the risk of cancer. Epidemiologic studies have shown that diets high in **Vitamin A** and **Vitamin C** are associated with lower risks of some kinds of cancers. Therefore, the NCI recommends consumption of a variety of fruits and vegetables, including fruit and vegetable juices that are high in **Vitamin A** and **Vitamin C**. Especially beneficial are cruciferous vegetables which are good sources of fiber, as well as vitamins and minerals.
DETD . . . major sources of dietary fat rather than by eliminating whole categories of foods. For example, by substituting fish, poultry without **skin**, lean meats and low- or non-fat dairy products for high-fat

foods, a patient may lower total fat and SFA intake. . .

DETD TABLE I

Nutrient	Daily Desired Level of Fortification Breakfast Meal (35%)	Lunch Meal (30%)	Dinner Meal (35%)
VITAMIN A, (IU)	1750	1500	1750
VITAMIN D, (IU)	140	120	140
VITAMIN E, (IU)	10.5	9	10.5
VITAMIN C, (mg)	35	30	35
VITAMIN B.sub.1, (mg)	0.53	0.45	0.53
VITAMIN B.sub.2, (mg)	0.6	0.51	0.6
VITAMIN B.sub.3, (mg)	7	6	7
VITAMIN B.sub.6, (mg)	0.7	0.6	0.7
VITAMIN B.sub.12, (mcg)	2.1	1.8	2.1
BIOTIN, (mcg)	105	90.	. .

DETD TABLE III

U.S. Recommended Dietary Allowance (USRDA)

NUTRIENT	USRDA
VITAMIN A	5000 IU
VITAMIN B.sub.1	1.5 mg
VITAMIN B.sub.2	1.7 mg
VITAMIN B.sub.3	20 mg NE.sup.1
VITAMIN B.sub.6	2 mg
VITAMIN B.sub.12	6 mcg
VITAMIN C	60 mg
VITAMIN D	400 IU
VITAMIN E	30 IU
VITAMIN K	80 mcg
BIOTIN	300 mcg
CALCIUM	1000 mg
COPPER	2 mg
FOLIC ACID	400 mcg
IODINE. . .	

DETD TABLE IV

DFEA Compositions

NUTRIENT RANGE	CONCENTRATION
VITAMIN A	1125-9900 IU
VITAMIN B.sub.1	0.41-2.07 mg
VITAMIN B.sub.2	0.23-2.24 mg
VITAMIN B.sub.3	6.3-25.3 mg NE
VITAMIN B.sub.6	0.54-2.75 mg
VITAMIN B.sub.12	1.08-8.58 mcg
VITAMIN C	31.5-330 mg
VITAMIN D	36-682 IU
VITAMIN E	9.45-49.5 IU
VITAMIN K	0-110 mcg
BIOTIN	94.5-412.5 mcg
CALCIUM	108-1333.2 mg
COPPER	0.95-3.63 mg
FOLIC ACID	126-660 mcg
IODINE. . .	

DETD TABLE VIII

Vitamin and Mineral Mixture (Frozen Foods)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	9000 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	1.88 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg	NE Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	Vitamm D.sub.3
VITAMIN E	45 IU	**Vitamin E** Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCIUM	1212 mg	Calcium Citrate/ Dicalcium Phosphate
COPPER	3.3. . .	

DETD . . . humidity, e.g. in a range of about 35 to 75% RH, to produce a homogenous vitamin mix: 36 mg of **Vitamin A** Palmitate (250 micron spray dried); 300 mg of Ascorbic Acid; 6.2 mg of **Vitamin D**.sub.3 -100 S.D.; 90 mg of **Vitamin E** acetate 50% (CWS/F); 10 mg of Vitamin K.sub.1, 1% (spray dried); 1.88 mg of Thiamine Mononitrate; 2.04 mg of Riboflavin;. . .

DETD TABLE IX

Vitamin and Mineral Mixture (Cereals)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	2500 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	0.59 mg	Thiamine Mononitrate
VITAMIN B.sub.2	0.32 mg	Riboflavin
VITAMIN B.sub.3	7.7 mg	NE Niacinamide
VITAMIN B.sub.6	0.84 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	2.4 mcg	Vitamin B.sub.12
VITAMIN C	140 mg	Ascorbic Acid/Sodium Ascorbate
VITAMIN D	80 IU	**Vitamin D**.sub.3
VITAMIN E	15.75 IU	**Vitamin E** Acetate
VITAMIN K	35 mcg	Vitamin K.sub.1
BIOTIN	141.75 mcg	Biotin
CALCIUM	123.6 mg	Calcium Carbonate
COPPER	1.16 mg	Copper. . .

DETD . . . humidity, e.g. in a range of about 35 to 75% RH, to produce a homogenous vitamin mix: 10 mg of **Vitamin A** Palmitate (250 micron spray dried); 140 mg of Ascorbic Acid; 0.8 mg of **Vitamin D**.sub.3 -100 S.D.; 31.5 mg of **Vitamin E** acetate 50% (CWS/F); 3.5 mg of Vitamin K.sub.1, 1% (spray dried); 0.59 mg of Thiamine Mononitrate; 0.32 mg of Riboflavin;. . .

DETD TABLE X

Vitamin and Mineral Mixture (Soups and Other Retorted Meals)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	9000 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	2.63 mg	Thiamine Mononitrate

VITAMIN B.sub.2 2.04 mg Riboflavin
VITAMIN B.sub.3 23 mg NE Niacinamide
VITAMIN B.sub.6 2.5 mg Pyridoxine Hydrochloride
VITAMIN B.sub.12 7.8 mcg Vitamin B.sub.12
VITAMIN C 300 mg Ascorbic Acid
VITAMIN D 620 IU **Vitamin D**.sub.3
VITAMIN E 45 IU **Vitamin E** Acetate
VITAMIN K 100 mcg Vitamin K.sub.1
BIOTIN 375 mcg Biotin
CALCIUM 1212 mg Calcium Citrate/Dicalcium Phosphate
COPPER 3.3 mg. . .

DETD TABLE XI

Garlic Roll

Nutrient Level	Fortification
VITAMIN A, (IU)	2250
VITAMIN D, (IU)	155
VITAMIN B, (IU)	11.25
VITAMIN C, (mg)	75
VITAMIN B.sub.1, (mg)	0.47
VITAMIN B.sub.2, (mg)	0.51
VITAMIN B.sub.3, (mg NE)	5.75
VITAMIN B.sub.6, (mg)	0.63
VITAMIN B.sub.12, (mcg)	1.95
BIOTIN, (mcg)	93.75
FOLIC ACID, (mcg)	150
PANTOTHENIC ACID,. . .	

DETD TABLE XII

Raisin Bran Cereal

Nutrient Level	Fortification
VITAMIN A, (IU)	2500
VITAMIN D, (IU)	80
VITAMIN B, (IU)	15.75
VITAMIN C, (mg)	140
VITAMIN B.sub.1, (mg)	0.59
VITAMIN B.sub.2, (mg)	0.32
VITAMIN B.sub.2, (mg NE)	7.7
VITAMIN B.sub.6, (mg)	0.84
VITAMIN. . .	

DETD TABLE XIII

Apple Crisp

Nutrient Level	Fortification
VITAMIN A, (IU)	1620
VITAMIN D, (IU)	111.6
VITAMIN E, (IU)	8.1
VITAMIN C, (mg)	54
VITAMIN B.sub.1, (mg)	0.34
VITAMIN B.sub.2, (mg)	0.37
VITAMIN B.sub.3, (mg NE)	4.14
VITAMIN B.sub.6, (mg)	0.45
VITAMIN B.sub.12, (mcg)	1.4

BIOTIN, (mcg) 67.5
FOLIC ACID, (mcg) 108
PANTOTHENIC ACID,. . .
DETD TABLE XIV

Whipped Potatoes

Nutrient Level	Fortification
VITAMIN A, (IU)	1080
VITAMIN D, (IU)	74.4
VITAMIN E, (IU)	5.4
VITAMIN C, (mg)	36
VITAMIN B.sub.1, (mg)	0.23
VITAMIN B.sub.2, (mg)	0.25
VITAMIN B.sub.3, (mg NE)	2.76
VITAMIN B.sub.6, (mg)	0.3
VITAMIN B.sub.12, (mcg)	0.94
BIOTIN, (mcg)	45
FOLIC ACID, (mcg)	72
PANTOTHENIC ACID,. . .	

DETD TABLE XV

Orange Juice Drink

Nutrient Level	Fortification
VITAMIN A, (IU)	1800
VITAMIN D, (IU)	124
VITAMIN E, (IU)	9
VITAMIN C, (mg)	60
VITAMIN B.sub.1, (mg)	0.38
VITAMIN B.sub.2, (mg)	0.41
VITAMIN B.sub.3, (mg NE)	4.6
VITAMIN B.sub.6, (mg)	0.5
VITAMIN B.sub.12, (mcg)	1.56
BIOTIN, (mcg)	75
FOLIC ACID, (mcg)	120
PANTOTHENIC ACID,. . .	

DETD TABLE XVI

Vegetable Soup

Nutrient Level	Fortification
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5
VITAMIN C, (mg)	90
VITAMIN B.sub.1, (mg)	0.79
VITAMIN B.sub.2, (mg)	0.61
VITAMIN B.sub.3, (mg NE)	6.9
VITAMIN B.sub.6, (mg)	0.75
VITAMIN B.sub.12, (mcg)	2.34
BIOTIN, (mcg)	112.1
FOLIC ACID, (mcg)	180
PANTOTHENIC ACID,. . .	

DETD TABLE XVII

Fruit Sauce

Nutrient Level	Fortification

VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39
BIOTIN, (mcg)	18.75
FOLIC ACID, (mcg)	30
PANTOTHENIC ACID,.	. .

DETD TABLE XVIII

Bagel

Nutrient	Level	Fortification
VITAMIN A, (IU)		450
VITAMIN D, (IU)		31
VITAMIN E, (IU)		2.25
VITAMIN C, (mg)		15
VITAMIN B.sub.1, (mg)		0.09
VITAMIN B.sub.2, (mg)		0.1
VITAMIN B.sub.3, (mg NE)		1.15
VITAMIN B.sub.6, (mg)		0.13
VITAMIN B.sub.12, (mcg)		0.39
BIOTIN, (mcg)		18.75
FOLIC ACID, (mcg)		30
PANTOTHENIC ACID,.		. .

DETD TABLE XIX

Salisbury Steak

Nutrient	Level	Fortification
VITAMIN A, (IU)		2700
VITAMIN D, (IU)		186
VITAMIN E, (IU)		13.5
VITAMIN C, (mg)		90
VITAMIN B.sub.1, (mg)		0.54
VITAMIN B.sub.2, (mg)		0.61
VITAMIN B.sub.3, (mg NE)		6.9
VITAMIN B.sub.6, (mg)		0.75
VITAMIN B.sub.12, (mcg)		2.34
BIOTIN, (mcg)		112.1
FOLIC ACID, (mcg)		180
PANTOTHEMC ACID,.		. .

DETD TABLE XX

Salisbury Steak Gravy

Nutrient	Level	Fortification
VITAMIN A, (IU)		450
VITAMIN D, (IU)		31
VITAMIN E, (IU)		2.25
VITAMIN C, (mg)		15
VITAMIN B.sub.1, (mg)		0.09
VITAMIN B.sub.2, (mg)		0.1
VITAMIN B.sub.3, (mg NE)		1.15

VITAMIN B.sub.6, (mg) 0.13
VITAMIN B.sub.12, (mcg) 0.39
BIOTIN, (mcg) 18.75
FOLIC ACID, (mcg) 30
PANTOTHENIC ACID,. . .
DETD . . . 7 7 6
Sugar (g) 18 33 35 23
Protein (g) 21 14 16 13
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 35 35 35 35
Vitamin C 55 55 55 55
Calcium 40 40 40 40
Iron 35 35 35 35
Vitamin D 35 35 35 35
Vitamin E 35 35 35 35
Thiamine 35 35 35 35
Riboflavin 35 35 35 35
Niacin 35 35 35 35
Vitamin. . .
DETD . . . 7 5 7
Sugar (g) 9 11 15 11
Protein (g) 19 26 20 20
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 30 30 30 30
Vitamin C 50 50 50 50
Calcium 35 35 35 35
Iron 30 30 30 30
Vitamin D 30 30 30 30
Vitamin E 30 30 30 30
Thiamine 30 30 30 30
Riboflavin 30 30 30 30
Niacin 30 30 30 30
Vitamin. . .
DETD . . . 8
Sugar (g) 7 8 6 13 18
Protein (g) 26 24 31 27 33
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35
Niacin 35 35. . .
DETD . . . 9
Sugar (g) 12 10 11 19 15
Protein (g) 27 28 32 29 25
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35

Niacin 35 35. . .
DETD . . . 1 3 2
Sugar (g) 2 1 9 11
Protein (g) 6 5 11 10
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES
(USRDA)
Vitamin A 4 4 4 4
Vitamin C 4 4 4 4
Calcium 4 4 4 4
Iron 4 4 4 4
Vitamin D 4 4 4 4
Vitamin E 4 4 4 4
Thiamine 4 4 4 4
Riboflavin 4 4 4 4
Niacin 4 4 4 4
Vitamin. . .
DETD . . . life. The trial was also to monitor the safety of the Prepared Diet by monitoring nutritional intake in plasma vitamins (**Vitamin A** and **Vitamin D**) and mineral (iron), and trace minerals levels.
CLM What is claimed is:
2. The agent of claim 1, wherein said premixed combination further comprises **Vitamin A**, Vitamin B.sub.1, Vitamin B.sub.2, **Vitamin B.sub.3**, Vitamin B.sub.6, Vitamin B.sub.12, **Vitamin C**, **Vitamin D**, **Vitamin E**, Vitamin K, biotin, copper, folic acid, iodine, iron, manganese, pantothenic acid, and zinc.

4. The agent of claim 3, wherein said premixed combination further comprises **Vitamin A**, Vitamin B.sub.1, Vitamin B.sub.2, **Vitamin B.sub.3**, Vitamin B.sub.6, Vitamin B.sub.12, **Vitamin C**, **Vitamin D**, **Vitamin E**, biotin calcium, copper, folic acid, iodine, iron, manganese, pantothenic acid, and zinc.

. . . and stable dietary food enhancement agent for fortifying frozen or retorted food products comprising a premixed combination of sources of **Vitamin A**, Vitamin B.sub.1, Vitamin B.sub.2, **Vitamin B.sub.3**, Vitamin B.sub.6, Vitamin B.sub.12, **Vitamin C**, **Vitamin D**, **Vitamin E**, Vitamin K, biotin, calcium, copper, folic acid, iodine, iron, magnesium, manganese, pantothenic acid, phosphorus, and zinc, wherein a daily portion in a range of 7.9 to 10 grams comprises: at least about 9000 IU **Vitamin A** ; at least about 1.88 mg Vitamin B.sub.1 ; at least about 2.04 mg Vitamin B.sub.2 ; at least about 23 mg **Vitamin B.sub.3** (Niacinamide); at least about 2.5 mg Vitamin B.sub.6 ; at least about 7.8 mcg Vitamin B.sub.12 ; at least about 375 mcg biotin; at least about 1212 mg calcium; at least about 300 mg **Vitamin C**; at least about 3.3 mg copper; at least about 620 IU **Vitamin D**; at least about 45 IU **Vitamin E**; at least about 600 mcg folic acid; at least about 172.5 mcg iodine; in a range of 5.67 to 20.79. . .

. . . powdered, freeflowing, and stable dietary food enhancement agent for fortifying cereal food products comprising a premixed combination of sources of **Vitamin A**, Vitamin B.sub.1, Vitamin B.sub.2, **Vitamin B.sub.3**, Vitamin B.sub.6, Vitamin B.sub.12, **Vitamin C**, **Vitamin D**, **Vitamin E**, Vitamin K, biotin, calcium, copper, folic acid, iodine, iron, magnesium, manganese,

pantothenic acid, phosphorus, and zinc, wherein a daily portion in a range of 0.86 to 1.6 grams comprises: about 2500 IU **Vitamin A**; about 0.59 mg Vitamin B.sub.1 ; about 0.32 mg Vitamin B.sub.2 ; about 7.7 mg **Vitamin B.sub.3** (Niacinamide); about 0.84 mg Vitamin B.sub.6 ; about 2.4 mcg Vitamin B.sub.12 ; about 141.75 mcg biotin; about 140 mg **Vitamin C**; about 123.6 mg calcium; about 1.16 mg copper; about 80 IU **Vitamin D**; about 15.75 IU **Vitamin E** ; about 210 mcg folic acid; about 60.38 mcg iodine; about 6.62 mg iron; about 4.5 mg pantothenic acid; about 38.63. . .

L3 ANSWER 2 OF 17 USPATFULL
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SUMM The NCI also suggests that diets rich in foods containing **Vitamin C** and **Vitamin A** from fruits and vegetables may also reduce the risk of cancer. Epidemiologic studies have shown that diets high in **Vitamin A** and **Vitamin C** are associated with lower risks of some kinds of cancers. Therefore, the NCI recommends consumption of a variety of fruits and vegetables, including fruit and vegetable juices that are high in **Vitamin A** and **Vitamin C**. Especially beneficial are cruciferous vegetables which are good sources of fiber, as well as vitamins and minerals.
DETD . . . major sources of dietary fat rather than by eliminating whole categories of foods. For example, by substituting fish, poultry without **skin**, lean meats and low- or non-fat dairy products for high-fat foods, a patient may lower total fat and SFA intake. . .
DETD TABLE I

Daily Desired Level of Fortification	Breakfast Meal	Lunch Meal	Dinner Meal
Nutrient	(35%)	(30%)	(35%)
VITAMIN A, (IU)	1750	1500	1750
VITAMIN D, (IU)	140	120	140
VITAMIN E, (IU)	10.5	9	10.5
VITAMIN C, (mg)	35	30	35
VITAMIN B.sub.1, (mg)	0.53	0.45	0.53
VITAMIN B.sub.2, (mg)	0.6	0.51	0.6
VITAMIN B.sub.3, (mg)	7	6	7
VITAMIN B.sub.6, (mg)	0.7	0.6	0.7
VITAMIN B.sub.12, (mcg)	2.1	1.8	2.1
BIOTIN, (mcg)	105	90.	. .

DETD TABLE III

U.S. Recommended Dietary Allowance USRDA) NUTRIENT	USRDA
VITAMIN A	5000 IU
VITAMIN B.sub.1	1.5 mg
VITAMIN B.sub.2	1.7 mg
VITAMIN B.sub.3	20 mg NE.sup.1
VITAMIN B.sub.6	2 mg
VITAMIN B.sub.12	6 mcg
VITAMIN C	60 mg
VITAMIN D	400 IU
VITAMIN E	30 IU
VITAMIN K	NONE ESTABLISHED
BIOTIN	300 mcg

CALCIUM 1000 mg
COPPER 2 mg
FOLIC ACID 400 mcg
IODINE. . .

DETD TABLE IV

DFEA Compositions

NUTRIENT	CONCENTRATION RANGE
VITAMIN A	1125-9900 IU
VITAMIN B.sub.1	0.41-2.07 mg
VITAMIN B.sub.2	0.23-2.24 mg
VITAMIN B.sub.3	6.3-25.3 mg NE
VITAMIN B.sub.6	0.54-2.75 mg
VITAMIN B.sub.12	1.08-8.58 mcg
VITAMIN C	31.5-330 mg
VITAMIN D	36-682 IU
VITAMIN E	9.45-49.5 IU
VITAMIN K	0-110 mcg
BIOTIN	94.5-412.5 mcg
CALCIUM	108-1333.2 mg
COPPER	0.95-3.63 mg
FOLIC ACID	126-660 mcg
IODINE. . .	

DETD TABLE VIII

Vitamin and Mineral Mixture (Frozen Foods)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	9000 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	1.88 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg NE	Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	**Vitamin D**.sub.3
VITAMIN E	45 IU	**Vitamin E** Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCIUM	1212 mg	Calcium Citrate/ Dicalcium Phosphate
COPPER	3.3. . .	

DETD . . . humidity, e.g. in a range of about 35 to 75% RH, to produce a homogenous vitamin mix: 36 mg of **Vitamin A** Palmitate (250 micron spray dried); 300 mg of Ascorbic Acid; 6.2 mg of **Vitamin D**.sub.3 -100 S.D.; 90 mg of **Vitamin E** acetate 50% (CWS/F); 10 mg of Vitamin K.sub.1, 1% (spray dried); 1.88 mg of Thiamine Mononitrate; 2.04 mg of Riboflavin;. . .

DETD TABLE IX

Vitamin and Mineral Mixture (Cereals)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	2500 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	0.59 mg	Thiamine Mononitrate
VITAMIN B.sub.2	0.32 mg	Riboflavin

VITAMIN B.sub.3 7.7 mg NE Niacinamide
VITAMIN B.sub.6 0.84 mg Pyridoxine Hydrochloride
VITAMIN B.sub.12 2.4 mcg Vitamin B.sub.12
VITAMIN C 140 mg Ascorbic Acid/Sodium Ascorbate
VITAMIN D 80 IU **Vitamin D**.sub.3
VITAMIN E 15.75 IU **Vitamin E** Acetate
BIOTIN 141.75 mcg Biotin
CALCIUM 123.6 mg Calcium Carbonate
COPPER 1.16 mg Copper Gluconate
FOLIC ACID 210 mcg Folic. . .
DETD TABLE X

Vitamin and Mineral Mixture (Soups and Other Retorted Meals)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	9000 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	2.63 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg	NE Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	**Vitamin D**.sub.3
VITAMIN E	45 IU	**Vitamin E** Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCIUM	1212 mg	Calcium Citrate/ Dicalcium Phosphate
COPPER	3.3. . .	

DETD TABLE XI

Garlic Roll

Nutrient	Fortification Level
VITAMIN A, (IU)	2250
VITAMIN D, (IU)	155
VITAMIN E, (IU)	11.25
VITAMIN C, (mg)	75
VITAMIN B.sub.1, (mg)	0.47
VITAMIN B.sub.2, (mg)	0.51
VITAMIN B.sub.3, (mg NE)	5.75
VITAMIN B.sub.6, (mg)	0.63
VITAMIN B.sub.12, (mcg)	1.95
BIOTIN, (mcg)	93.75
FOLIC ACID, (mcg)	150
PANTOTHNIC ACID,. . .	

DETD TABLE XII

Raisin Bran Cereal

Nutrient	Fortification Level
VITAMIN A, (IU)	2500
VITAMIN D, (IU)	80
VITAMIN E, (IU)	15.75
VITAMIN C, (mg)	140
VITAMIN B.sub.1, (mg)	0.59

VITAMIN B.sub.2, (mg) 0.32
VITAMIN B.sub.3, (mg NE) 7.7
VITAMIN B.sub.6, (mg) 0.84
VITAMIN B.sub.12, (mcg) 2.4
BIOTIN, (mcg) 141.75
FOLIC ACID, (mcg) 210
PANTOTHENIC ACID,. . .

DETD TABLE XIII

Apple Crisp

Nutrient Level	Fortification
VITAMIN A, (IU)	1620
VITAMIN D, (IU)	111.6
VITAMIN E, (IU)	8.1
VITAMIN C, (mg)	54
VITAMIN B.sub.1, (mg)	0.34
VITAMIN B.sub.2, (mg)	0.37
VITAMIN B.sub.3, (mg NE)	4.14
VITAMIN B.sub.6, (mg)	0.45
VITAMIN B.sub.12, (mcg)	1.4
BIOTIN, (mcg)	67.5
FOLIC ACID, (mcg)	108
PANTOTHENIC ACID,.	. .

DETD TABLE XIV

Whipped Potatoes

Nutrient Level	Fortification
VITAMIN A, (IU)	1080
VITAMIN D, (IU)	74.4
VITAMIN E, (IU)	5.4
VITAMIN C, (mg)	36
VITAMIN B.sub.1, (mg)	0.23
VITAMIN B.sub.2, (mg)	0.25
VITAMIN B.sub.3, (mg NE)	2.76
VITAMIN B.sub.6, (mg)	0.3
VITAMIN B.sub.12, (mcg)	0.94
BIOTIN, (mcg)	45
FOLIC ACID, (mcg)	72
PANTOTHENIC ACID,.	. .

DETD TABLE XV

Orange Juice Drink

Nutrient Level	Fortification
VITAMIN A, (IU)	1800
VITAMIN D, (IU)	124
VITAMIN E, (IU)	9
VITAMIN C, (mg)	60
VITAMIN B.sub.1, (mg)	0.38
VITAMIN B.sub.2, (mg)	0.41
VITAMIN B.sub.3, (mg NE)	4.6
VITAMIN B.sub.6, (mg)	0.5
VITAMIN B.sub.12, (mcg)	1.56
BIOTIN, (mcg)	75
FOLIC ACID, (mcg)	120
PANTOTHENIC ACID,.	. .

DETD TABLE XVI

Vegetable Soup

Nutrient Level	Fortification
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5
VITAMIN C, (mg)	90
VITAMIN B.sub.1, (mg)	0.79
VITAMIN B.sub.2, (mg)	0.61
VITAMIN B.sub.3, (mg NE)	6.9
VITAMIN B.sub.6, (mg)	0.75
VITAMIN B.sub.12, (mcg)	2.34
BIOTIN, (mcg)	112.1
FOLIC ACID, (mcg)	180
PANTOTHENIC ACID,.	. .
DETD	TABLE XVII

Fruit Sauce

Nutrient Level	Fortification
VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39
BIOTIN, (mcg)	18.75
FOLIC ACID, (mcg)	30
PANTOTHENIC ACID,.	. .
DETD	TABLE XVIII

Bagel

Nutrient Level	Fortification
VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39
BIOTIN, (mcg)	18.75
FOLIC ACID, (mcg)	30
PANTOTHENIC ACID,.	. .
DETD	TABLE XIX

Salisbury Steak

Nutrient Level	Fortification
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5

VITAMIN C, (mg) 90
VITAMIN B.sub.1, (mg) 0.54
VITAMIN B.sub.2, (mg) 0.61
VITAMIN B.sub.3, (mg NE) 6.9
VITAMIN B.sub.6, (mg) 0.75
VITAMIN B.sub.12, (mcg) 2.34
BIOTIN, (mcg) 112.1
FOLIC ACID, (mcg) 180
PANTOTHENIC ACID,. . .
DETD TABLE XX

Salisbury Steak Gravy
Fortification
Nutrient Level

VITAMIN A, (IU) 450
VITAMIN D, (IU) 31
VITAMIN E, (IU) 2.25
VITAMIN C, (mg) 15
VITAMIN B.sub.1, (mg) 0.09
VITAMIN B.sub.2, (mg) 0.1
VITAMIN B.sub.3, (mg NE) 1.15
VITAMIN B.sub.6, (mg) 0.13
VITAMIN B.sub.12, (mcg) 0.39
BIOTIN, (mcg) 18.75
FOLIC ACID, (mcg) 30
PANTOTHENIC ACID,. . .
DETD . . . 6
(g)
Sugar (g) 18 33 35 23
Protein (g) 21 14 16 13
PERCENTAGE OF U.S. RECOMMENDED DIETARY
ALLOWANCES (USRDA)
Vitamin A 35 35 35 35
Vitamin C 55 55 55 55
Calcium 40 40 40 40
Iron 35 35 35 35
Vitamin D 35 35 35 35
Vitamin E 35 35 35 35
Thiamine 35 35 35 35
Riboflavin 35 35 35 35
Niacin 35 35 35 35
Vitamin. . .
DETD . . . Fiber (g)
Sugar (g) 9 11 15 11
Protein (g) 19 26 20 20
PERCENTAGE OF U.S. RECOMMENDED DIETARY
ALLOWANCES (USRDA)
Vitamin A 30 30 30 30
Vitamin C 50 50 50 50
Calcium 35 35 35 35
Iron 30 30 30 30
Vitamin D 30 30 30 30
Vitamin E 30 30 30 30
Thiamine 30 30 30 30
Riboflavin 30 30 30 30
Niacin 30 30 30 30
Vitamin. . .
DETD . . . 8
Sugar (g) 7 8 6 13 18
Protein (g) 26 24 31 27 33
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES

(USRDA)
Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35
Niacin 35 35. . . 9
Sugar (g) 12 10 11 19 15
Protein (g) 27 28 32 29 25
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES
(USRDA)
Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35
Niacin 35 35. . .
DETD . . . 3 2
Sugar (g) 2 1 9 11
Protein (g) 6 5 11 10
PERCENTAGE OF U.S. RECOMMENDED DIETARY
ALLOWANCES (USRDA)
Vitamin A 4 4 4 4
Vitamin C 4 4 & 4
Calcium 4 4 4 4
Iron 4 4 4 4
Vitamin D 4 4 4 4
Vitamin E 4 4 4 4
Thiamine 4 4 4 4
Riboflavin 4 4 4 4
Niacin 4 4 4 4
Vitamin. . .
DETD . . . life. The trial was also to monitor the safety of the Prepared Diet by monitoring nutritional intake in plasma vitamins (**Vitamin A** and **Vitamin D**) and mineral (iron), and trace minerals levels.

L3 ANSWER 3 OF 17 USPATFULL
PI US 5977059 19991102 <--
SUMM The NCI also suggests that diets rich in foods containing **Vitamin C** and **Vitamin A** from fruits and vegetables may also reduce the risk of cancer. Epidemiologic studies have shown that diets high in **Vitamin A** and **Vitamin C** are associated with lower risks of some kinds of cancers. Therefore, the NCI recommends consumption of a variety of fruits and vegetables, including fruit and vegetable juices that are high in **Vitamin A** and **Vitamin C**. Especially beneficial are cruciferous vegetables which are good sources of fiber, as well as vitamins and minerals.
DETD . . . major sources of dietary fat rather than by eliminating whole categories of foods. For example, by substituting fish, poultry without **skin**, lean meats and low- or non-fat dairy products for high-fat foods, a patient may lower total fat and SFA intake. . .
DETD TABLE I

Daily Desired Level of Fortification

Nutrient	Breakfast Meal (35%)	Lunch Meal (30%)	Dinner Meal (35%)
VITAMIN A, (IU)	1750	1500	1750
VITAMIN D, (IU)	140	120	140
VITAMIN E, (IU)	10.5	9	10.5
VITAMIN C, (mg)	35	30	35
VITAMIN B.sub.1, (mg)	0.53	0.45	0.53
VITAMIN B.sub.2, (mg)	0.6	0.51	0.6
VITAMIN B.sub.3, (mg)	7	6	7
VITAMIN B6, (mg)	0.7	0.6.	0.7
VITAMIN B.sub.12, (mcg)	2.1	1.8	2.1
BIOTIN, (mcg)	105	90.	. .

DETD TABLE III

U.S. Recommended Dietary Allowance (USRDA)

NUTRIENT	USRDA
VITAMIN A	5000 IU
VITAMIN B.sub.1	1.5 mg
VITAMIN B.sub.2	1.7 mg
VITAMIN B.sub.3	20 mg NE.sup.1
VITAMIN B.sub.6	2 mg
VITAMIN B.sub.12	6 mcg
VITAMIN C	60 mg
VITAMIN D	400 IU
VITAMIN E	30 IU
VITAMIN K	NONE ESTABLISHED
BIOTIN	300 mcg
CALCIUM	1000 mg
COPPER	2 mg
FOLIC ACID	400 mcg
IODINE. .	.

DETD TABLE IV

DFEA Compositions

NUTRIENT RANGE	CONCENTRATION
VITAMIN A	1125-9900 IU
VITAMIN B.sub.1	0.41-2.07 mg
VITAMIN B.sub.2	0.23-2.24 mg
VITAMIN B.sub.3	6.3-25.3 mg NE
VITAMIN B.sub.6	0.54-2.75 mg
VITAMIN B.sub.12	1.08-8.58 mcg
VITAMIN C	31.5-330 mg
VITAMIN D	36-682 IU
VITAMIN E	9.45-49.5 IU
VITAMIN K	0-110 mcg
BIOTIN	94.5-412.5 mcg
CALCIUM	108-1333.2 mg
COPPER	0.95-3.63 mg
FOLIC ACID	126-660 mcg
IODINE. .	.

DETD TABLE VIII

Vitamin and Mineral Mixture (Frozen Foods)

NUTRIENT	CONCEN-TRATION	FORM

VITAMIN A Palmitate	9000 IU	**Vitamin A**
VITAMIN B.sub.1	1.88 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg	NE Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	**Vitamin D**.sub.3
VITAMIN E	45 IU	Vitainin E Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCIUM	1212 mg	Calcium Citrate/Dicalcium

. . .

DETD . . . humidity, e.g. in a range of about 35 to 75% RH, to produce a homogenous vitamin mix: 36 mg of **Vitamin A** Palmitate (250 micron spray dried); 300 mg of Ascorbic Acid; 6.2 mg of **Vitamin D**.sub.3 --100 S.D.; 90 mg of **Vitamin E** acetate 50% (CWS/F); 10 mg of Vitamin K.sub.1, 1% (spray dried); 1.88 mg of Thiamine Mononitrate; 2.04 mg of Riboflavin;. . .

DETD TABLE IX

Vitmnin and Mineral Mixture (Cereals)

NUTRIENT	CENTRATION	CON-FORM
VITAMIN A Palmitate	2500 IU	**Vitamin A**
VITAMIN B.sub.1	0.59 mg	Thiamine Mononitrate
VITAMIN B.sub.2	0.32 mg	Riboflavin
VITAMIN B.sub.3	7.7 mg	NE Niacinamide
VITAMIN B.sub.6	0.84 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	2.4 mcg	Vitamin B.sub.12
VITAMIN C Ascorbate	140 mg	Ascorbic Acid/Sodium
VITAMIN D	80 IU	**Vitamin D**.sub.3
VITAMIN E	15.75 IU	**Vitamin E** Acetate
BIOTIN	141.75 mcg	Biotin
CALCIUM	123.6 mg	Calcium Carbonate
COPPER	1.16 mg	Copper Gluconate
FOLIC ACID	210 mcg	Folic. . .

DETD TABLE X

Vitamin and Mineral Mixture (Soups and Other Retorted Meals)

NUTRIENT	CENTRATION	CON-FORM
VITAMIN A Palmitate	9000 IU	**Vitamin A**
VITAMIN B.sub.1	2.63 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg	NE Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	**Vitamin D**.sub.3
VITAMIN E	45 IU	**Vitamin E** Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCIUM	1212 mg	Calcium Citrate/Dicalcium Phosphate

COPPER 3.3 mg. . .

DETD TABLE XI

Garlic Roll

Nutrient Level	Fortification
VITAMIN A, (IU)	2250
VITAMIN D, (IU)	155
VITAMIN E, (IU)	11.25
VITAMIN C, (mg)	75
VITAMIN B.sub.1, (mg)	0.47
VITAMIN B.sub.2, (mg)	0.51
VITAMIN B.sub.3, (mg NE)	5.75
VITAMIN B.sub.6, (mg)	0.63
VITAMIN B.sub.12, (mcg)	1.95
BIOTIN, (mcg)	93.75
FOLIC ACID, (mcg)	150
PANTOTHENIC ACID,. . .	

DETD TABLE XII

Raisin Bran Cereal

Nutrient Level	Fortification
VITAMIN A, (IU)	2500
VITAMIN D, (IU)	80
VITAMIN E, (IU)	15.75
VITAMIN C, (mg)	140
VITAMIN B.sub.1, (mg)	0.59
VITAMIN B.sub.2, (mg)	0.32
VITAMIN B.sub.3, (mg NE)	7.7
VITAMIN B.sub.6, (mg)	0.84
VITAMIN B.sub.12, (mcg)	2.4
BIOTIN, (mcg)	141.75
FOLIC ACID, (mcg)	210
PANTOTHENIC ACID,. . .	

DETD TABLE XIII

Apple Crisp

Nutrient Level	Fortification
VITAMIN A, (IU)	1620
VITAMIN D, (IU)	111.6
VITAMIN E, (IU)	8.1
VITAMIN C, (mg)	54
VITAMIN B.sub.1, (mg)	0.34
VITAMIN B.sub.2, (mg)	0.37
VITAMIN B.sub.3, (mg NE)	4.14
VITAMIN B.sub.6, (mg)	0.45
VITAMIN B.sub.12, (mcg)	1.4
BIOTIN, (mcg)	67.5
FOLIC ACID, (mcg)	108
PANTOTHENIC ACID,. . .	

DETD TABLE XIV

Whipped Potatoes

Nutrient Level	Fortification
VITAMIN A, (IU)	1080

VITAMIN D, (IU) 74.4
VITAMIN E, (IU) 5.4
VITAMIN C, (mg) 36
VITAMIN B.sub.1, (mg) 0.23
VITAMIN B.sub.2, (mg) 0.25
VITAMIN B.sub.3, (mg NE) 2.76
VITAMIN B.sub.6, (mg) 0.3
VITAMIN B.sub.12, (mcg) 0.94
BIOTIN, (mcg) 45
FOLIC ACID, (mcg) 72
PANTOTHENIC ACID,. . .

DETD TABLE XV

Orange Juice Drink

Nutrient Level	Fortification
VITAMIN A, (IU)	1800
VITAMIN D, (IU)	124
VITAMIN E, (IU)	9
VITAMIN C, (mg)	60
VITAMIN B.sub.1, (mg)	0.38
VITAMIN B.sub.2, (mg)	0.41
VITAMIN B.sub.3, (mg NE)	4.6
VITAMIN B.sub.6, (mg)	0.5
VITAMIN B.sub.12, (mcg)	1.56
BIOTIN, (mcg)	75
FOLIC ACID, (mcg)	120
PANTOTHENIC ACID,.	. .

DETD TABLE XVI

Vegetable Soup

Nutrient Level	Fortification
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5
VITAMIN C, (mg)	90
VITAMIN B.sub.1, (mg)	0.79
VITAMIN B.sub.2, (mg)	0.61
VITAMIN B.sub.3, (mg NE)	6.9
VITAMIN B.sub.6, (mg)	0.75
VITAMIN B.sub.12, (mcg)	2.34
BIOTIN, (mcg)	112.1
FOLIC ACID, (mcg)	180
PANTOTHENIC ACID,.	. .

DETD TABLE XVII

Fruit Sauce

Nutrient Level	Fortification
VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39

BIOTIN, (mcg) 18.75
FOLIC ACID, (mcg) 30
PANTOTHENIC ACID,. . .
DETD TABLE XVIII

Bagel

Fortification

Nutrient Level

VITAMIN A, (IU) 450
VITAMIN D, (IU) 31
VITAMIN E, (IU) 2.25
VITAMIN C, (mg) 15
VITAMIN B.sub.1, (mg) 0.09
VITAMIN B.sub.2, (mg) 0.1
VITAMIN B.sub.3, (mg NE) 1.15
VITAMIN B.sub.6, (mg) 0.13
VITAMIN B.sub.12, (mcg) 0.39
BIOTIN, (mcg) 18.75
FOLIC ACID, (mcg) 30
PANTOTHENIC ACID,. . .
DETD TABLE XIX

Salisbury Steak

Fortification

Nutrient Level

VITAMIN A, (IU) 2700
VITAMIN D, (IU) 186
VITAMIN E, (IU) 13.5
VITAMIN C, (mg) 90
VITAMIN B.sub.1, (mg) 0.54
VITAMIN B.sub.2, (mg) 0.61
VITAMIN B.sub.3, (mg NE) 6.9
VITAMIN B.sub.6, (mg) 0.75
VITAMIN B.sub.12, (mcg) 2.34
BIOTIN, (mcg) 112.1
FOLIC ACID, (mcg) 180
PANTOTHENIC ACID,. . .
DETD TABLE XX

Salisbury Steak Gravy

Fortification

Nutrient Level

VITAMIN A, (IU) 450
VITAMIN D, (IU) 31
VITAMIN E, (IU) 2.25
VITAMIN C, (mg) 15
VITAMIN B.sub.1, (mg) 0.09
VITAMIN B.sub.2, (mg) 0.1
VITAMIN B.sub.3, (mg NE) 1.15
VITAMIN B.sub.6, (mg) 0.13
VITAMIN B.sub.12, (mcg) 0.39
BIOTIN, (mcg) 18.75
FOLIC ACID, (mcg) 30
PANTOTHENIC ACID,. . .
DETD . . . 7 7 6
Sugar (g) 18 33 35 23
Protein (g) 21 14 16 13
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 35 35 35 35

Vitamin C 55 55 55 55
Calcium 40 40 40 40
Iron 35 35 35 35
Vitamin D 35 35 35 35
Vitamin E 35 35 35 35
Thiamine 35 35 35 35
Riboflavin 35 35 35 35
Niacin 35 35 35 35
Vitamin. . .
DETD . . . 5 7
Sugar (g) 9 11 15 11
Protein (g) 19 26 20 20
PERCENTAGE OF U.S. RECOMMENDED
DIETARY ALLOWANCES (USRDA)
Vitamin A 30 30 30 30
Vitamin C 50 50 50 50
Calcium 35 35 35 35
Iron 30 30 30 30
Vitamin D 30 30 30 30
Vitamin E 30 30 30 30
Thiamine 30 30 30 30
Riboflavin 30 30 30 30
Niacin 30 30 30 30
Vitamin. . .
DETD . . . 27 33

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)

BBQ CHICKEN	MUSTARD CHICKEN	GRILLED ROASTED CHICKEN	GRILLED HERB MEATLOAF	POT ROAST

Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35
Niacin 35 35. . . 9
Sugar (g) 12 10 11 19 15
Protein (g) 27 28 32 29 25
PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)
Vitamin A 35 35 35 35 35
Vitamin C 55 55 55 55 55
Calcium 40 40 40 40 40
Iron 35 35 35 35 35
Vitamin D 35 35 35 35 35
Vitamin E 35 35 35 35 35
Thiamine 35 35 35 35 35
Riboflavin 35 35 35 35 35
Niacin 35 35. . .
DETD . . . 3 2
Sugar (g) 2 1 9 11
Protein (g) 6 5 11 10
PERCENTAGE OF U.S. RECOMMENDED
DIETARY ALLOWANCES (USRDA)
Vitamin A 4 4 4 4
Vitamin C 4 4 4 4
Calcium 4 4 4 4

Iron 4 4 4 4
Vitamin D 4 4 4 4
Vitamin E 4 4 4 4
Thiamine 4 4 4 4
Riboflavin 4 4 4 4
Niacin 4 4 4 4
Vitamin. . .

DETD . . . life. The trial was also to monitor the safety of the Prepared Diet by monitoring nutritional intake in plasma vitamins (**Vitamin A** and **Vitamin D**) and mineral (iron), and trace minerals levels.

L3 ANSWER 4 OF 17 USPATFULL

PI US 5976513 19991102 <--

SUMM It is well known that exposure to sunlight can pose a number of hazards to the **skin**. These damaging effects may result not only from sunbathing but also from the sunlight exposure associated with daily outdoor activities.. . . a wavelength of from about 290 nm to about 320 nm. Over the long term, however, malignant changes in the **skin** surface often occur. Numerous epideminologic studies demonstrate a strong relationship between sunlight exposure and human **skin** cancer. Another long term hazard of ultraviolet radiation is premature aging of the **skin**, which is primarily caused by UVA radiation having a wavelength of from about 320 nm to about 400 nm. This condition is characterized by wrinkling and pigment changes of the **skin**, along with other physical changes such as cracking, telangiectasis, solar dermatoses, ecchymoses, and loss of elasticity. The adverse effects associated. . .

SUMM . . . care products" refer to health and cosmetic beauty aid products generally recognized as being formulated for beautifying and grooming the **skin** and hair. For example, personal care products include sunscreen products (e.g., lotions, **skin** creams, etc.), cosmetics, toiletries, and over-the-counter pharmaceutical products intended for topical usage.

SUMM . . . are efficient at absorbing UV radiation in the 290 nm to 320 nm UVB region such that sunburn of the **skin** is prevented. They are less efficient when it comes to absorbing light which falls in the 320 nm to 400 nm UVA region, which leaves the **skin** vulnerable to premature **skin** aging. This deficiency is due in part to the limited number of UVA absorbing sunscreen actives which are both commercially. . .

SUMM . . . there is a need for photostabilized compositions suitable for providing protection against the harmful effects of UV radiation to human **skin**. In particular, in the personal care industry, a need remains for sunscreen products having excellent photostability, efficiency, and which provide. . .

SUMM . . . and most preferably from about 2:1 to about 1:1. The present invention also relates to methods for providing protection to **skin** from the harmful effects of UV radiation by topical application of such compositions. Furthermore, the present invention relates to methods. . .

SUMM . . . compositions of the present invention are useful for providing protection against the harmful effects of ultraviolet radiation, especially to human **skin**. The essential components of these compositions are described below. Also included is a nonexclusive description of various optional and preferred. . .

SUMM . . . against erythema. The SPF is defined as the ratio of the ultraviolet energy required to produce minimal erythema on protected **skin** to that required to produce the same minimal erythema on unprotected **skin** in the same individual. See Federal Register, 43, No. 166, pp. 38206-38269, Aug. 25, 1978).

SUMM . . . use application. For example, carriers of the present invention

include, but are not limited to, those suitable for application to **skin**, hair, nails, animal **skin**, fur, automobiles, fabrics, marine vehicles, as well as those suitable for incorporation into plastics, metals, etc.. Preferably, the carriers of the present invention are suitable for application to **skin** (e.g., sunscreens, creams, milks, lotions, masks, serums, etc.); hair and fur (e.g., shampoos, hair setting or treatment gels or lotions,. . . lacquers or lotions, etc,); and nails (e.g., polishes, treatments, etc.). In preferred embodiments, the carrier is suitable for application to **skin** which means that the carrier and its components are suitable for use in contact with **skin**, hair, fur, and nails without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical. . . and can include one or more compatible liquid or solid filler diluents or vehicles which are suitable for application to **skin**, hair, fur, and nails. The exact amount of carrier will depend upon the level of the UVA-absorbing dibenzoylmethane sunscreen active,. . .

SUMM . . . etc.), hair care and styling products (e.g., shampoos, conditioners, gels, mousses, sprays, etc.), topical animal care items (e.g., shampoos, conditioners, **skin** treatments, etc.). Any additional components required to formulate such products vary with product type and can be routinely chosen by. . .

SUMM If compositions of the present invention are formulated as an aerosol and applied to the **skin** as a spray-on product, a propellant is added to the composition. Examples of suitable propellants include chlorofluorinated lower molecular weight. . .

SUMM In a preferred embodiment, where the composition is to be in contact with human **skin**, the optional components should be suitable for application to **skin**, that is, when incorporated into the composition they are suitable for use in contact with human **skin** without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical judgment. The CTFA Cosmetic Ingredient Handbook, Second Edition (1992) describes a wide variety of nonlimiting cosmetic and pharmaceutical ingredients commonly used in the **skin** care industry, which are suitable for use in the compositions of the present invention. Examples of these ingredient classes include: abrasives, absorbents, aesthetic components such as fragrances, pigments, colorings/colorants, essential oils, **skin** sensates, astringents, etc. (e.g., clove oil, menthol, camphor, eucalyptus oil, eugenol, menthyl lactate, witch hazel distillate), anti-acne agents, anti-caking agents,. . . and substantivity of the composition (e.g., copolymer of eicosene and vinyl pyrrolidone), opacifying agents, pH adjusters, propellants, reducing agents, sequestrants, **skin** bleaching and lightening agents (e.g., hydroquinone, kojic acid, ascorbic acid, magnesium ascorbyl phosphate, ascorbyl glucosamine), **skin**-conditioning agents (e.g., humectants, including miscellaneous and occlusive), **skin** soothing and/or healing agents (e.g., panthenol and derivatives (e.g., ethyl panthenol), aloe vera, pantothenic acid and its derivatives, allantoin, bisabolol, and dipotassium glycyrrhizinate), **skin** treating agents, thickeners, and vitamins and derivatives thereof.

SUMM . . . such optional components. Preferred compositions optionally contain one or more materials selected from UVB sunscreen actives, anti-acne actives, vitamin compounds, **skin** treating agents, humectants, moisturizers, **skin** conditioners, thickening agents, structuring agents, and emulsifiers.

SUMM . . . These vitamin compounds may be in either natural or synthetic form. Suitable vitamin compounds include, but are not limited to, **Vitamin A** (e.g., beta carotene, retinoic acid, retinol, retinoids, retinyl palmitate, retinyl proprionate, etc.), Vitamin B (e.g., niacin, niacinamide, riboflavin, pantothenic acid, etc.), **Vitamin C** (e.g., ascorbic acid, etc.),

Vitamin D (e.g., ergosterol, ergocalciferol, cholecalciferol, etc.), **Vitamin E** (e.g., tocopherol acetate, etc.), and Vitamin K (e.g., phytonadione, menadione, phthiocol, etc.) compounds.

SUMM In particular, the compositions of the present invention may comprise a safe and effective amount of a **vitamin B.sub .3** compound. **Vitamin B.sub. 3** compounds are particularly useful for regulating **skin** condition as described in co-pending U.S. application Ser. No. 08/834,010, filed Apr. 11, 1997 (corresponding to international publication WO 97/39733. . . and still more preferably from about 1% to about 5%, most preferably from about 2% to about 5%, of the **vitamin B.sub.3** compound.

SUMM As used herein, "**vitamin B.sub.3** compound" means a compound having the formula: ##STR7## wherein R is --CONH.sub.2 (i.e., niacinamide), --COOH (i.e., nicotinic acid) or --CH.sub.2. . .

SUMM Exemplary derivatives of the foregoing **vitamin B. sub.3** compounds include nicotinic acid esters, including non-vasodilating esters of nicotinic acid, nicotinyl amino acids, nicotinyl alcohol esters of carboxylic acids,. . .

SUMM Examples of suitable **vitamin B.sub. 3** compounds are well known in the art and are commercially available from a number of sources, e.g., the Sigma Chemical. . .

SUMM d) **Skin** Treating Agent

SUMM The compositions of the present invention may contain one or more **skin** treating agents. Suitable **skin** treating agents include those effective for preventing, retarding, arresting, and/or reversing **skin** wrinkles. Examples of suitable **skin** treating agents include, but are not limited to, alpha-hydroxy acids such as lactic acid and glycolic acid and beta-hydroxy acids. . .

SUMM g) Humectants, Moisturizers, and **Skin** Conditioners

SUMM Preferred compositions optionally comprise one or more humectants, moisturizers, or **skin** conditioners. A variety of these materials can be employed and each can be present at a level of from about. . .

SUMM . . . products. More preferably, the compositions of the present invention are suitable for use as sunscreens to provide protection to human **skin** from the harmful effects of UV radiation which include, but are not limited to, sunburn and premature aging of the **skin**. The present invention therefore also further relates to methods of protecting human **skin** from the harmful effects of UV radiation. Such methods generally involve attenuating or reducing the amount of UV radiation which reaches the **skin**'s surface. To protect the **skin** from UV radiation, a safe and effective (photoprotective) amount of the composition is topically applied to the **skin**. "Topical application" refers to application of the present compositions by spreading, spraying, etc. onto the surface of the **skin**. The exact amount applied may vary depending on the level of UV protection desired. From about 0.5 mg of composition per cm.sup.2 of **skin** to about 25 mg of composition per cm.sup.2 of **skin** are typically applied.

CLM What is claimed is:

18. A method for providing protection against the harmful effects of ultraviolet radiation to **skin**, said method comprising applying a safe and effective amount of the composition of claim 1 to **skin**.

L3 ANSWER 5 OF 17 USPATFULL

TI Pharmaceutical compositions and methods for improving wrinkles and other **skin** conditions

PI US 5972999 19991026 <--

AB This application relates to a pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient having a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**, a primary antioxidant component in an amount sufficient to substantially inhibit the formation of collagenase and elastase, at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**, and at least one transition metal component in an amount effective to bind collagen and elastic fibers and rebuild **skin**. In one preferred form, the composition further includes a catechin-based preparation, a glucosamine or a pharmaceutically acceptable salt or ester. . . a chondroitin or a pharmaceutically acceptable salt or ester thereof. In a more preferred form, the invention further includes a **vitamin E** source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source. The invention further relates to a method for the prevention or treatment of **skin** conditions by administering the pharmaceutical composition in an amount therapeutically effective to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

SUMM . . . well as methods, to supplement collagen and elastic tissues and thicken the dermis for the treatment of wrinkles and other **skin** conditions.

SUMM Human **skin** is a composite material of the epidermis and the dermis. The topmost part of the epidermis is the stratum corneum. This layer is the stiffest layer of the **skin**, as well as the one most affected by the surrounding environment. Below the stratum corneum is the internal portion of. . . the dermis is the papillary dermis, which is made of relatively loose connective tissues that define the micro-relief of the **skin**. The reticular dermis, disposed beneath the papillary dermis, is tight, connective tissue that is spatially organized. The reticular dermis is. . .

SUMM The principal functions of the **skin** include protection, excretion, secretion, absorption, thermoregulation, pigmentogenesis, accumulation, sensory perception, and regulation of immunological processes. These functions are detrimentally affected by the structural changes in the **skin** due to aging and excessive sun exposure. The physiological changes associated with **skin** aging include impairment of the barrier function and decreased turnover of epidermal cells, for example. [Cerimele, D., et al., Br.. . .

SUMM The mechanical properties of the **skin**, such as elasticity, are controlled by the density and geometry of the network of collagen and elastic fiber tissue therein. Damaged collagen and elastin lose their contractile properties, resulting in **skin** wrinkling and **skin** surface roughness. As the **skin** ages or becomes unhealthy, it acquires sags, stretch marks, bumps, bruises or wrinkles, it roughens, and it has reduced ability to synthesize **Vitamin D**. Aged **skin** also becomes thinner and has a flattened dermoepidermal interface because of the alterations in collagen, elastin, and glycosaminoglycans. [Fenske, N.. . .

SUMM A variety of vitamins and minerals have in individually been administered to treat certain **skin** and other problems that occur when the patient has a deficiency of that vitamin or mineral. **Vitamin A**, for example, assists in the treatment of acne and to facilitate wound healing; **vitamin C** (ascorbic acid) assists in the prevention of **skin** bruising and wound healing; **vitamin E** is an antioxidant; and copper assists in the treatment of elastic tissue defects. [Neldner, K. H., Amer. Acad. Derm. Annl. Mtg., Wash. D.C., Dec. 6, 1993]. Topical use of **vitamin C** is also believed to ward off sun

damage, reduce breakdown of connective tissues, and possibly promote collagen synthesis. [Dial, W., Medical World News, p. 12, March 1991]. **Vitamin E** is used topically as an anti-inflammatory agent, for enhancement of **skin** moisturization, for UV-ray protection of cells, and for retardation of premature **skin** aging.

SUMM . . . metabolism of glycosaminoglycans under the influence of herbal and other anti-inflammatory agents has been examined by measuring glycosaminoglycans in the **skin**, liver, kidney, and spleen after administration of several compounds. [Reddy, G. K., et al., Biochem. Pharmacology, 38(20) :3527-3534 (1989)].

SUMM . . . a patient, various of the above ingredients have been combined to form pharmaceuticals designed to prevent and treat certain cellular, **skin**, and other conditions. For example, U.S. Pat. No. 3,773,930 discloses a low residue, dietary composition having at least one amino. . .

SUMM U.S. Pat. No. 4,414,202 discloses a composition for the treatment of **skin** wounds with a buffered salt solution having a pH between 6 to 7.8 and administering a starch hydrolysate compound, and. . .

SUMM U.S. Pat. No. 4,424,232 discloses a topical composition for the treatment of herpes simplex, cold sores, lesions, and other painful **skin** conditions including L-lysine, gibberellic acid, and urea in an inert carrier having water. The composition may also include L-ascorbic acid,. . .

SUMM U.S. Pat. No. 5,198,465 discloses a composition for treating precursor deficiencies in the synthesis of collagen with proline, glycine, lysine, **vitamin C**, and one or more compounds selected from .alpha.-ketoglutaric acid, methionine, cysteine, cystine, valine, and pharmaceutically acceptable diluents and excipients.

SUMM . . . complexes; an enzyme producer such as an amino acid like glutamic acid; an herbal antispasmodic substance like Valerian root; and **vitamin C**.

SUMM U.S. Pat. No. 5,415,875 discloses a method of suppressing formation of lipid peroxide and removing peroxide by applying to the **skin** a decomposed product of shell membrane and tocopherol and derivatives. Lysine, proline, **Vitamin C**, for examples, are listed among a vast genus of optional additives.

SUMM The above references, however, do not teach pharmaceutical compositions or methods for improving **skin** wrinkles along with other conditions, such as **skin** elasticity and softness. Thus, it is desired to find a pharmaceutical composition and a method for the prevention and treatment of wrinkles and other **skin** conditions. The present invention advantageously provides pharmaceutical compositions, as well as methods of treatment comprising the administration of such compositions, to repair **skin** for the prevention and treatment of wrinkles and other **skin** disorders.

SUMM The present invention relates to a pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient having a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**, a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase, at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**, and at least one transition metal component in an amount effective to bind collagen and elastic fibers and rebuild **skin** .

SUMM In another preferred embodiment, the composition further includes a **vitamin E** source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source. In a more preferred embodiment, the **vitamin E** is D-alpha tocopheryl acid succinate present

in about 1 to 15 weight percent, the **vitamin B.** **sub.3** is niacinamide present in about 0.5 to 15 weight percent, the **vitamin A** is **vitamin A** palmitate present in about 0.1 to 5 weight percent, the cysteine is N-acetyl cysteine present in about 1 to 10. . .

SUMM The invention further relates to a method for the prevention or treatment of **skin** conditions, wherein the **skin** has a thickness of dermis and collagen, which includes administering the pharmaceutical composition above in an amount therapeutically effective to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

SUMM In one embodiment according to the invention, the **skin** condition treated is at least one of wrinkles, fine lines, thinning, reduced **skin** elasticity, reduced **skin** moisture, spider veins, senile purpura, sun damaged **skin**, aging **skin**, or rough **skin**. In another embodiment, the composition is administered orally. In a preferred embodiment, the composition is administered as a tablet or. . .

SUMM . . . conjunction with concurrent or subsequent treatment by at least one additional pharmaceutical composition for the prevention or treatment of a **skin** condition.

SUMM A formulation for the reduction of wrinkles and the improvement of other **skin** conditions, such as increased **skin** elasticity and **skin** softness, has now been discovered. Moreover, the prevention or treatment of unhealthy **skin**, such as aged **skin** or **skin** overexposed to sunlight, may advantageously be accomplished by the administration of the pharmaceutical composition of the present invention to a. . . pharmaceutical composition includes the combination of a number of different components which interact to provide the desired improvements to the **skin**.

SUMM The advantageous pharmaceutical composition of the present invention prevents and improves **skin** conditions by using a sufficient amount of at least one sugar compound which is converted into glycosaminoglycans in the bloodstream,. . . supplementing collagen and elastic tissues. A thicker dermis desirably reduces the wrinkling and lines that occur when areas of the **skin** become thin. Various amino acids such as lysine, proline and cysteine assist in the thickening of the dermis, supplementing of collagen and elastic tissues and, consequently, reduction of wrinkles and other **skin** conditions. Additionally, antioxidants, such as **vitamin C**, inhibit collagenase and elastase, enzymes that break down collagen and elastic tissues. These antioxidants assist in the prevention of additional wrinkles and facilitate the healing of **skin** tissues. Finally, transition metal components are included to bind collagen fibers and inhibit elastase, an enzyme that also breaks down. . .

SUMM The pharmaceutical composition includes a primary antioxidant, which typically is a **vitamin C** source and preferably is ascorbic acid, or a pharmaceutically acceptable salt or ester thereof, and more preferably is ascorbyl palmitate,. . . or mixtures thereof. When oral formulations of the pharmaceutical composition are used, it is preferred that a non-acidic form of **vitamin C** be used to reduce the stomach irritation that may occur when using an acidic form. The **vitamin C** source is present in the pharmaceutical composition in about 5 to 50 weight percent, preferably about 7 to 40 weight percent, and more preferably about 10 to 25 weight percent. A unit dose of this primary **vitamin C** source is typically about 40 mg to 400 mg, preferably about 60 mg to 300 mg, and more preferably about 80 to 150 mg. **Vitamin C** is also approved by the FDA and has wide consumer acceptance, so that it can be used in amounts as. . .

SUMM The pharmaceutical composition also includes at least one amino acid to

assist in thickening the **skin**. Preferably two or more amino acids are used in combination. Either the L- or D- forms of amino acids are. . .

SUMM . . . or more transition metal compounds are included in an amount effective to bind collagen and elastic tissue to rebuild the **skin**. Certain transition metal compounds inhibit the elastase enzyme to inhibit collagen and elastic tissue breakdown. Preferred transition metals include zinc,. . .

SUMM . . . assist in binding collagen and elastic fibers, which both assists in the prevention of wrinkles and the rebuilding of wrinkled **skin**. The zinc component may be any zinc compound or pharmaceutically acceptable salt thereof, but more preferably is a zinc complexed. . .

SUMM . . . or pharmaceutically acceptable salt thereof, but more preferably is a manganese component which is at least partially complexed with a **vitamin C** source, and most preferably is manganese ascorbate or manganese ascorbic acid, wherein the manganese is typically present in about 5 to 20 weight percent of the complex. When complexed with **vitamin C**, this **vitamin C** source may be included in the overall percentage of **vitamin C** in the pharmaceutical composition. The manganese component is present in about 1 to 10 weight percent, more preferably about 2. . .

SUMM The catechin-based preparation, similar to **vitamin C**, inhibits elastase and collagenase, which is another enzyme that attacks elastic tissue and collagen. The catechin-based preparation is preferably a. . .

SUMM . . . 90 weight percent of the salt. The glucosamine content of this component contributes to the formation of glycosoaminoglycans in the **skin**. The chondroitin component preferably is present as a sulfate or succinate, and more preferably is chondroitin sulfate, wherein the chondroitin. . .

SUMM In a more preferred form, several optional additives are included in the pharmaceutical composition, such as a **vitamin E** source, a **vitamin B.sub.3** source, quercetin powder, pyridoxal 5 phosphate-Co B.sub.6, and a **vitamin A** source. The **vitamin E** preferably is a sulfate or succinate **vitamin E** complex, and more preferably is D-alpha tocopheryl acid succinate. The **vitamin E** source is present in about 1 to 15 weight percent, preferably about 2 to 12 weight percent, and more preferably. . . 10 weight percent of the composition. In any event, no more than 1,500 IU should be ingested per day, as **Vitamin E** becomes toxic at higher doses. The **vitamin B.sub.3** source preferably is niacinamide, and the source is present in about 0.5 to 15 weight percent, preferably about 1 to 12 weight percent, and more preferably about 1.5 to 10 weight percent of the composition. The **vitamin A** source preferably is **vitamin A** palmitate, and the source is present in about 0.1 to 5 weight percent, preferably 0.2 to 3 weight percent, and more preferably 0.3 to 1 weight percent of the composition. In the more preferred form, the amount of **vitamin A** dosage is about 500,000 IU/gram per unit dose. **Vitamin A** is toxic at high levels, such that no more than 400,000 IU should be cumulatively ingested per day for greater. . .

SUMM . . . amount" means that amount of the pharmaceutical composition that provides a therapeutic benefit in the treatment, prevention, or management of **skin** wrinkles and other **skin** conditions.

DETD

Weight Percent	Amount	Chemical or Scientific Name

Ingredient	(% w/w)	(mg)	(if different)
N-Acetylglucosamine	17.1	140	N-Acetyl D-Glucosamine
Vitamin C (81.2% Ascorbic Acid)	15	123.2	
L-Lysine (80%)	12.2	100	L-Lysine hydrochloride
L-Proline	11	90	
D-Glucosamine Sulfate (75%)	6.5	53.3	
Chondroitin Sulfate (80%)	6.1	50	
Vitamin E Succinate	4.3	39.7	D-.alpha. tocopheryl acid succinate
Zinc monomethionine (20%)	3.7	30	Zinc DL-methionine
N-Acetyl Cysteine	3.7	30	
Manganese Ascorbate (13% Mn)	2.8	23.1	
Vitamin B.sub.3 Niacinamide	2.4	20	Niacinamide
Quercetin Powder	2.4	20	Quercetin dihydrate
Grape Seed Extract	0.9	7.5	Proanthocyanidin
Pyridoxal 5 Phosphate-Co	0.6	5	P-5-P monohydrate
B.sub.6 Selenomethionine (0.5%)	0.5	4	L-selenomethionine
Vitamin A Palmitate (500,000 IU/GR)	0.5	4	
Copper Sebacate (14%)	0.4	2.9	
Red beet root powder	6.1	50	Beta vulgaris rubra
Stearic acid	1.5	12	
Sorbitol	1.3. . .		

DETD . . . 73 female subjects to determine the effects on the elasticity, firmness, and presence of fine lines and wrinkles of the **skin**. A seven day conditioning period was used prior to initiation of the study, where subjects were instructed to discontinue use. . .

DETD The texture of the **skin**, fine lines, and wrinkles were assessed by taking Silflo replicas of the periorbital area (crow's feet) at each of the. . . replicas, were illuminated at a precisely defined angle of 35.degree. to create shadows for analysis by shades of gray. The **skin** topography is defined by the: (a) number of wrinkles; (b) total area of wrinkles; (c) total length of wrinkles; (d). . .

DETD . . . is a function of the length of treatment as indicated above. This strongly suggests the treatment has imparted an improved **skin** infrastructure by beneficially affecting the dermis of the **skin**.

DETD The Ballistometer is an instrument designed to evaluate in vivo, in a non-invasive manner, the viscoelastic properties of the **skin**. It analyzes the bounce pattern displayed by a probe that is allowed to impact on the **skin**. The kinetic energy of the probe striking the **skin** is stored by the elastic components of the **skin** and released back to make the probe rebound to a lower height. The height to which the probe will rebound depends upon the amount of stored energy lost in shear viscosity within the **skin**.

DETD The capacity of the **skin** to absorb mechanical energy may thus be measured. Although it is unclear exactly which layer, or layers, of the **skin** are responsible, the mechanical properties of the dermis/epidermis layers are controlled by the density and geometry of the network of. . .

DETD . . . less of the energy of the striking probe was restored, thus, a greater amount of energy was dissipated in the **skin**. This suggests the **skin** became softer and more yielding during the test period.

DETD The Cutometer is a commercially available instrument (Courage & Khazaka, Germany) designed to measure the mechanical properties of the **skin** in a non-invasive manner. It measures the vertical deformation of the **skin**'s surface when pulled by vacuum suction (500 mm Hg) through the small aperture (2 mm) of a probe and the depth of penetration of the **skin** into the probe optically with an accuracy of 0.01 mm. The probe is attached to a computer, which completely controls probe operation and plots **skin** deformation as a function of time. From this curve, a number of variables can be extrapolated to estimate the elastic, viscoelastic, and purely viscous behavior of the **skin**.

DETD . . . final distension (U.sub.f), measured at 10 seconds; and (d) immediate retraction (U.sub.r). The deformation parameters are extrinsic parameters dependent on **skin** thickness, and a variety of biologically important ratios were calculated: (a) U.sub.r /U.sub.f, a measure of net elasticity of the **skin**; (b) U.sub.r /U.sub.e, the biological elasticity, or measurement of the ability of the **skin** to regain its initial configuration after deformation; and (c) U.sub.v /U.sub.e, the viscoelastic to elastic ratio, where an increase in. . .

DETD . . . distension (U.sub.v) decreased a significant 16 percent ($p<0.04$) after 5 weeks of treatment. This parameter reflects viscoelastic properties of the **skin** and, thus, the behavior of the dermis. After 5 weeks, there were no statistically significant changes in U.sub.e, the immediate. . .

DETD The general appearance of soft, smooth **skin** depends largely on the presence of an adequate amount of water in the stratum corneum. The Corneometer is a commercially available instrument (Courage & Khazaka, Germany) to measure the changes in capacitance of the **skin** resulting from changes in the degree of hydration. It is particularly sensitive to low levels of hydration, and uses measurements of arbitrary units of **skin** hydration (H) to express capacitance.

DETD . . . moisturizing agents and humectants. Thus, the measurements with the Ballistometer and Cutometer indicate changes occurred in deeper layers of the **skin**, rather than the superficial stratum corneum. Table IV shows no significant changes in the hydration of the stratum corneum following. . .

DETD TABLE IV

Corneometer Readings

Skin Hydration (H)

	Mid-Baseline		Final-Baseline	
	Control	Treated	Control	Treated
Average	-5	-7	-8	-4
Standard Deviation	6	7	5	7
p value	p <. . .			

CLM What is claimed is:

1. An orally administered pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient comprising: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; and at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin** .

7. The pharmaceutical composition of claim 1, further comprising a **vitamin E** source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source.

8. The pharmaceutical composition of claim 7, wherein the **vitamin E** is D-alpha tocopheryl acid succinate present in about 1 to 15 weight percent, the **vitamin B. sub.3** is niacinamide present in about 0.5 to 15 weight percent, the **vitamin A** is **vitamin A** palmitate present in about 0.1 to 5 weight percent, the cysteine is N-acetyl cysteine present in about 1 to 10. . .

9. A method for the prevention or treatment of **skin** conditions, wherein the **skin** has a thickness of dermis and collagen, which comprises administering to a patient: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; and at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin**, so as to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

10. The method of claim 9, wherein the **skin** condition prevented or treated is at least one of wrinkles or the appearance thereof, fine lines or the appearance thereof, thinning, reduced **skin** elasticity, reduced **skin** moisture, spider veins, senile purpura, sun damaged **skin**, aging **skin** or rough **skin**.

. . . conjunction with concurrent or subsequent treatment by at least one additional pharmaceutical composition for the prevention or treatment of a **skin** condition.

13. A method for the prevention or treatment of **skin** conditions, wherein the **skin** has a thickness of dermis and collagen, which comprises administering to a patient: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount

sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin**; and a catechin-based component present in an amount sufficient to inhibit the presence of an anti-collagen enzyme in the **skin**, so as to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

14. An pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient consisting essentially of: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; and at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin**.

L3 ANSWER 6 OF 17 USPATFULL

PI US 5972316 19991026 <--

SUMM It is well known that exposure to sunlight can pose a number of hazards to the **skin**. These damaging effects may result not only from sunbathing but also from the sunlight exposure associated with daily outdoor activities.. . . a wavelength of from about 290 nm to about 320 nm. Over the long term, however, malignant changes in the **skin** surface often occur. Numerous epideminologic studies demonstrate a strong relationship between sunlight exposure and human **skin** cancer. Another long term hazard of ultraviolet radiation is premature aging of the **skin**, which is primarily caused by UVA radiation having a wavelength of from about 320 nm to about 400 nm. This condition is characterized by wrinkling and pigment changes of the **skin**, along with other physical changes such as cracking, telangiectasis, solar dermatoses, ecchymoses, and loss of elasticity. The adverse effects associated. . .

SUMM . . . care products" refer to health and cosmetic beauty aid products generally recognized as being formulated for beautifying and grooming the **skin** and hair. For example, personal care products include sunscreen products (e.g., lotions, **skin** creams, etc.), cosmetics, toiletries, and over-the-counter pharmaceutical products intended for topical usage.

SUMM . . . are efficient at absorbing UV radiation in the 290 nm to 320 nm UVB region such that sunburn of the **skin** is prevented. They are less efficient when it comes to absorbing light which falls in the 320 nm to 400 nm UVA region, which leaves the **skin** vulnerable to premature **skin** aging. This deficiency is due in part to the limited number of UVA absorbing sunscreen actives which are both commercially. . .

SUMM . . . there is a need for photostabilized compositions suitable for providing protection against the harmful effects of UV radiation to human **skin**. In particular, in the personal care industry, a need remains for sunscreen products having excellent photostability, efficiency, and which provide. . .

SUMM . . . and most preferably from about 2:1 to about 1:1. The present invention also relates to methods for providing protection to **skin** from the harmful effects of UV radiation by topical application of such compositions. Furthermore, the present invention relates to methods. . .

SUMM . . . compositions of the present invention are useful for providing protection against the harmful effects of ultraviolet radiation,

especially to human **skin**. The essential components of these compositions are described below. Also included is a nonexclusive description of various optional and preferred. . .

SUMM . . . against erythema. The SPF is defined as the ratio of the ultraviolet energy required to produce minimal erythema on protected **skin** to that required to produce the same minimal erythema on unprotected **skin** in the same individual. See Federal Register, 43, No. 166, pp. 38206-38269, Aug. 25, 1978).

SUMM . . . use application. For example, carriers of the present invention include, but are not limited to, those suitable for application to **skin**, hair, nails, animal **skin**, fur, automobiles, fabrics, marine vehicles, as well as those suitable for incorporation into plastics, metals, etc. Preferably, the carriers of the present invention are suitable for application to **skin** (e.g., sunscreens, creams, milks, lotions, masks, serums, etc.); hair and fur (e.g., shampoos, hair setting or treatment gels or lotions,. . . lacquers or lotions, etc,); and nails (e.g., polishes, treatments, etc.). In preferred embodiments, the carrier is suitable for application to **skin** which means that the carrier and its components are suitable for use in contact with **skin**, hair, fur, and nails without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical. . . and can include one or more compatible liquid or solid filler diluents or vehicles which are suitable for application to **skin**, hair, fur, and nails. The exact amount of carrier will depend upon the level of the UVA-absorbing dibenzoylmethane sunscreen active,. . .

SUMM . . . etc.), hair care and styling products (e.g., shampoos, conditioners, gels, mousses, sprays, etc.), topical animal care items (e.g., shampoos, conditioners, **skin** treatments, etc.). Any additional components required to formulate such products vary with product type and can be routinely chosen by. . .

SUMM If compositions of the present invention are formulated as an aerosol and applied to the **skin** as a spray-on product, a propellant is added to the composition. Examples of suitable propellants include chlorofluorinated lower molecular weight. . .

SUMM In a preferred embodiment, where the composition is to be in contact with human **skin**, the optional components should be suitable for application to **skin**, that is, when incorporated into the composition they are suitable for use in contact with human **skin** without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical judgment. The CTFA Cosmetic Ingredient Handbook, Second Edition (1992) describes a wide variety of nonlimiting cosmetic and pharmaceutical ingredients commonly used in the **skin** care industry, which are suitable for use in the compositions of the present invention. Examples of these ingredient classes include: abrasives, absorbents, aesthetic components such as fragrances, pigments, colorings/colorants, essential oils, **skin** sensates, astringents, etc. (e.g., clove oil, menthol, camphor, eucalyptus oil, eugenol, menthyl lactate, witch hazel distillate), anti-acne agents, anti-caking agents,. . . and substantivity of the composition (e.g., copolymer of eicosene and vinyl pyrrolidone), opacifying agents, pH adjusters, propellants, reducing agents, sequestrants, **skin** bleaching and lightening agents (e.g., hydroquinone, kojic acid, ascorbic acid, magnesium ascorbyl phosphate, ascorbyl glucosamine), **skin**-conditioning agents (e.g., humectants, including miscellaneous and occlusive), **skin** soothing and/or healing agents (e.g., panthenol and derivatives (e.g., ethyl panthenol), aloe vera, pantothenic acid and its derivatives, allantoin, bisabolol, and dipotassium glycyrrhizinate), **skin** treating agents, thickeners, and vitamins and derivatives thereof.

SUMM . . . such optional components. Preferred compositions optionally contain one or more materials selected from UVB sunscreen actives,

anti-acne actives, vitamin compounds, **skin** treating agents, humectants, moisturizers, **skin** conditioners, thickening agents, structuring agents, and emulsifiers.

SUMM . . . These vitamin compounds may be in either natural or synthetic form. Suitable vitamin compounds include, but are not limited to, **Vitamin A** (e.g., beta carotene, retinoic acid, retinol, retinoids, retinyl palmitate, retinyl proprionate, etc.), Vitamin B (e.g., niacin, niacinamide, riboflavin, pantothenic acid, etc.), **Vitamin C** (e.g., ascorbic acid, etc.), **Vitamin D** (e.g., ergosterol, ergocalciferol, cholecalciferol, etc.), **Vitamin E** (e.g., tocopherol acetate, etc.), and Vitamin K (e.g., phytonadione, menadione, phthiocol, etc.) compounds.

SUMM In particular, the compositions of the present invention may comprise a safe and effective amount of a **vitamin B.sub .3** compound. **Vitamin B.sub. 3** compounds are particularly useful for regulating **skin** condition as described in co-pending U.S. application Ser. No. 08/834,010, filed Apr. 11, 1997 (corresponding to international publication WO 97/39733. . . and still more preferably from about 1% to about 5%, most preferably from about 2% to about 5%, of the **vitamin B.sub.3** compound.

SUMM As used herein, "**vitamin B.sub.3** compound" means a compound having the formula: ##STR12## wherein R is --CONH.sub.2 (i.e., niacinamide), --COOH (i.e., nicotinic acid) or --CH.sub.2. . .

SUMM Exemplary derivatives of the foregoing **vitamin B. sub.3** compounds include nicotinic acid esters, including non-vasodilating esters of nicotinic acid, nicotinyl amino acids, nicotinyl alcohol esters of carboxylic acids,. . .

SUMM Examples of suitable **vitamin B.sub. 3** compounds are well known in the art and are commercially available from a number of sources, e.g., the Sigma Chemical. . .

SUMM d) **Skin** Treating Agent

SUMM The compositions of the present invention may contain one or more **skin** treating agents. Suitable **skin** treating agents include those effective for preventing, retarding, arresting, and/or reversing **skin** wrinkles. Examples of suitable **skin** treating agents include, but are not limited to, alpha-hydroxy acids such as lactic acid and glycolic acid and beta-hydroxy acids. . .

SUMM g) Humectants, Moisturizers, and **Skin** Conditioners

SUMM Preferred compositions optionally comprise one or more humectants, moisturizers, or **skin** conditioners. A variety of these materials can be employed and each can be present at a level of from about. . .

SUMM . . . products. More preferably, the compositions of the present invention are suitable for use as sunscreens to provide protection to human **skin** from the harmful effects of UV radiation which include, but are not limited to, sunburn and premature aging of the **skin**. The present invention therefore also further relates to methods of protecting human **skin** from the harmful effects of UV radiation. Such methods generally involve attenuating or reducing the amount of UV radiation which reaches the **skin**'s surface. To protect the **skin** from UV radiation, a safe and effective (photoprotective) amount of the composition is topically applied to the **skin**. "Topical application" refers to application of the present compositions by spreading, spraying, etc. onto the surface of the **skin**. The exact amount applied may vary depending on the level of UV protection desired. From about 0.5 mg of composition per cm.sup.2 of **skin** to about 25 mg of composition per cm.sup.2 of **skin** are typically applied.

CLM What is claimed is:

. . . effects of ultraviolet radiation, said method comprising applying a safe and effective amount of the composition of claim 1 to **skin**
.

L3 ANSWER 7 OF 17 USPATFULL
PI US 5968485 19991019 <--
SUMM It is well known that exposure to sunlight can pose a number of hazards to the **skin**. These damaging effects may result not only from sunbathing but also from the sunlight exposure associated with daily outdoor activities.. . . a wavelength of from about 290 nm to about 320 nm. Over the long term, however, malignant changes in the **skin** surface often occur. Numerous epideminologic studies demonstrate a strong relationship between sunlight exposure and human **skin** cancer. Another long term hazard of ultraviolet radiation is premature aging of the **skin**, which is primarily caused by UVA radiation having a wavelength of from about 320 nm to about 400 nm. This condition is characterized by wrinkling and pigment changes of the **skin**, along with other physical changes such as cracking, telangiectasis, solar dermatoses, ecchymoses, and loss of elasticity. The adverse effects associated. . .
SUMM . . . care products" refer to health and cosmetic beauty aid products generally recognized as being formulated for beautifying and grooming the **skin** and hair. For example, personal care products include sunscreen products (e.g., lotions, **skin** creams, etc.), cosmetics, toiletries, and over-the-counter pharmaceutical products intended for topical usage.
SUMM . . . are efficient at absorbing UV radiation in the 290 nm to 320 nm UVB region such that sunburn of the **skin** is prevented. They are less efficient when it comes to absorbing light which falls in the 320 nm to 400 nm UVA region, which leaves the **skin** vulnerable to premature **skin** aging. This deficiency is due in part to the limited number of UVA absorbing sunscreen actives which are both commercially. . .
SUMM . . . there is a need for photostabilized compositions suitable for providing protection against the harmful effects of UV radiation to human **skin**. In particular, in the personal care industry, a need remains for sunscreen products having excellent photostability, efficiency, and which provide. . .
SUMM . . . and most preferably from about 2:1 to about 1:1. The present invention also relates to methods for providing protection to **skin** from the harmful effects of UV radiation by topical application of such compositions. Furthermore, the present invention relates to methods. . .
SUMM . . . compositions of the present invention are useful for providing protection against the harmful effects of ultraviolet radiation, especially to human **skin**. The essential components of these compositions are described below. Also included is a nonexclusive description of various optional and preferred. . .
SUMM . . . against erythema. The SPF is defined as the ratio of the ultraviolet energy required to produce minimal erythema on protected **skin** to that required to produce the same minimal erythema on unprotected **skin** in the same individual. See Federal Register, 43, No. 166, pp. 38206-38269, Aug. 25, 1978).
SUMM . . . use application. For example, carriers of the present invention include, but are not limited to, those suitable for application to **skin**, hair, nails, animal **skin**, fur, automobiles, fabrics, marine vehicles, as well as those suitable for incorporation into plastics, metals, etc. Preferably, the carriers of the present invention are suitable for application to **skin** (e.g., sunscreens, creams, milks, lotions, masks, serums, etc.); hair and fur (e.g., shampoos, hair setting or treatment gels or lotions,. . .

lacquers or lotions, etc,); and nails (e.g., polishes, treatments, etc.). In preferred embodiments, the carrier is suitable for application to **skin** which means that the carrier and its components are suitable for use in contact with **skin**, hair, fur, and nails without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical. . . and can include one or more compatible liquid or solid filler diluents or vehicles which are suitable for application to **skin**, hair, fur, and nails. The exact amount of carrier will depend upon the level of the UVA-absorbing dibenzoylmethane sunscreen active,. . .

SUMM . . . etc.), hair care and styling products (e.g., shampoos, conditioners, gels, mousses, sprays, etc.), topical animal care items (e.g., shampoos, conditioners, **skin** treatments, etc.). Any additional components required to formulate such products vary with product type and can be routinely chosen by. . .

SUMM If compositions of the present invention are formulated as an aerosol and applied to the **skin** as a spray-on product, a propellant is added to the composition. Examples of suitable propellants include chlorofluorinated lower molecular weight. . .

SUMM In a preferred embodiment, where the composition is to be in contact with human **skin**, the optional components should be suitable for application to **skin**, that is, when incorporated into the composition they are suitable for use in contact with human **skin** without undue toxicity, incompatibility, instability, allergic response, and the like within the scope of sound medical judgment. The CTFA Cosmetic Ingredient Handbook, Second Edition (1992) describes a wide variety of nonlimiting, cosmetic and pharmaceutical ingredients commonly used in the **skin** care industry, which are suitable for use in the compositions of the present invention. Examples of these ingredient classes include: abrasives, absorbents, aesthetic components such as fragrances, pigments, colorings colorants, essential oils, **skin** sensates, astringents, etc. (e.g., clove oil, menthol, camphor, eucalyptus oil, eugenol, menthyl lactate, witch hazel distillate), anti-acne agents, anti-caking agents,. . . and substantivity of the composition (e.g., copolymer of eicosene and vinyl pyrrolidone), opacifying agents, pH adjusters, propellants, reducing agents, sequestrants, **skin** bleaching and lightening agents (e.g., hydroquinone, kojic acid, ascorbic acid, magnesium ascorbyl phosphate, ascorbyl glucosamine), **skin**-conditioning agents (e.g., humectants, including miscellaneous and occlusive), **skin**, soothing and/or healing agent (e.g., panthenol and derivatives (e.g., ethyl panthenol), aloe vera, pantothenic acid and its derivatives, allantoin, bisabolol, and dipotassium glycyrrhizinate), **skin** treating agents, thickeners, and vitamins and derivatives thereof.

SUMM . . . such optional components. Preferred compositions optionally contain one or more materials selected from UVB sunscreen actives, anti-acne actives, vitamin compounds, **skin** treating agents, humectants, moisturizers, **skin** conditioners, thickening agents, structuring agents, and emulsifiers.

SUMM . . . These vitamin compounds may be in either natural or synthetic form. Suitable vitamin compounds include, but are not limited to, **Vitamin A** (e.g., beta carotene, retinoic acid, retinol, retinoids, retinyl palmitate, retinyl proprionate, etc.), Vitamin B (e.g., niacin, niacinamide, riboflavin, pantothenic acid, etc.), **Vitamin C** (e.g., ascorbic acid, etc.), **Vitamin D** (e.g., ergosterol, ergocalciferol, cholecalciferol, etc.), **Vitamin E** (e.g., tocopherol acetate, etc), and Vitamin K (e.g., phytonadione, menadione, phthiocol, etc.) compounds.

SUMM In particular, the compositions of the present invention may comprise a safe and effective amount of a **vitamin B.sub .3** compound. **Vitamin B.sub.**

3 compounds are particularly useful for regulating **skin** condition as described in co-pending U.S. application Ser. No. 08/834,010, filed Apr. 11, 1997 (corresponding to international publication WO 97/39733. . . and still more preferably from about 1% to about 5%, most preferably from about 2% to about 5%, of the **vitamin B.sub.3** compound.

SUMM As used herein, "**vitamin B.sub.3** compound" means a compound having the formula: ##STR7## wherein R is --CONH.sub.2 (i.e., niacinamide), --COOH (i.e., nicotinic acid) or --CH.sub.2. . .

SUMM Exemplary derivatives of the foregoing **vitamin B.sub.3** compounds include nicotinic acid esters, including non-vasodilating esters of nicotinic acid, nicotinyl amino acids, nicotinyl alcohol esters of carboxylic acids,. . .

SUMM Examples of suitable **vitamin B.sub.3** compounds are well known in the art and are commercially available from a number of sources, e.g., the Sigma Chemical. . .

SUMM d) **Skin** Treating Agent

SUMM The compositions of the present invention may contain one or more **skin** treating agents. Suitable **skin** treating agents include those effective for preventing, retarding, arresting, and/or reversing **skin** wrinkles. Examples of suitable **skin** treating agents include, but are not limited to, alpha-hydroxy acids such as lactic acid and glycolic acid and beta-hydroxy acids. . .

SUMM g) Humectants, Moisturizers, and **Skin** Conditioners

SUMM Preferred compositions optionally comprise one or more humectants, moisturizers, or **skin** conditioners. A variety of these materials can be employed and each can be present at a level of from about. . .

SUMM . . . products. More preferably, the compositions of the present invention are suitable for use as sunscreens to provide protection to human **skin** from the harmful effects of UV radiation which include, but are not limited to, sunburn and premature aging of the **skin**. The present invention therefore also further relates to methods of protecting human **skin** from the harmful effects of UV radiation. Such methods generally involve attenuating or reducing the amount of UV radiation which reaches the **skin**'s surface. To protect the **skin** from UV radiation, a safe and effective (photoprotective) amount of the composition is topically applied to the **skin**. "Topical application" refers to application of the present compositions by spreading, spraying, etc. onto the surface of the **skin**. The exact amount applied may vary depending on the level of UV protection desired. From about 0.5 mg of composition per cm.sup.2 of **skin** to about 25 mg of composition per cm.sup.2 of **skin** are typically applied.

CLM What is claimed is:

18. A method for protecting **skin** from the harmful effects of ultraviolet radiation, said method comprising applying a safe and effective amount of the composition of claim 1 to **skin**.

L3 ANSWER 8 OF 17 USPATFULL

PI US 5962517 19991005 <--

AB . . . blemishes associated with acne. The invention also relates to pharmaceutical compositions having, in addition to the acne reduction component, a **skin** cell conditioning component in an amount sufficient to properly regulate the keratin and sebum production of the **skin** cells, thereby inhibiting the appearance of acne. In a preferred form, the **skin** cell conditioning component is a chromium component. In another preferred form, the composition further includes at least one of a **vitamin C** source, burdock root, yellow dock root, horsetail extract, a catechin-based composition,

a vitamin B.sub.1 source, a vitamin B.sub.2 source, a **vitamin B.sub.3** source, a vitamin B.sub.5 source, and a **vitamin E** source. In a more preferred form, the invention also includes at least one amino acid component, a magnesium component, a. . . amount therapeutically effective in reducing the incidence of acne and methods for additionally inhibiting the appearance of acne by conditioning **skin** cells.

SUMM This invention relates to pharmaceutical compositions for treating acne and conditioning the **skin** cells in patients. The invention further relates to methods of treating acne and conditioning **skin** cells by administering the pharmaceutical compositions to the patient.

SUMM The mammalian **skin**, in particular, human **skin**, is a multifunctional organ. Not only does the **skin** provide an external covering to protect the body, but it also performs several specialized functions, such as breathing, perspiring, sensory. . . production. [D. Mowery, The Scientific Validation of Herbal Medicine, 248 (1986)]. Oil production, essential to the protective features of the **skin**, works when an oily substance known as sebum is released from the sebaceous glands, which are large glands located at the base of a hair follicle. This permits the **skin** to moisturize and waterproof itself, thereby protecting itself from the environment. [J. Whitaker, Dr. Whitaker's Guide to Natural Healing, 141,. . .

SUMM . . . insoluble protein that is the primary constituent of the hair and the epidermis. Together, the sebum and keratin block a **skin** pore, resulting in a comedone, also known as a blackhead. Bacteria proliferates in clogged pores, and the body typically responds. . .

SUMM . . . the gland, mixes with dead cells, and eventually ruptures the follicle wall, which typically forms a deep cyst under the **skin** . Scarring often results from these deep cysts. [Roche Laboratories Inc., Important Information Concerning Your Treatment with Accutane, 6th ed., (1996)].. . .

SUMM . . . benzoyl peroxide, erythromycin, clindamycin, or tetracycline are commonly used to control the bacteria. These methods often lead to overly dry **skin**, and relapse is common after treatment has ended. [Id.].

SUMM Vitamins and herbs often provide more promising results with regard to acne. **Vitamin A** has proven to be highly effective in treating acne. Since the early seventies, topical retinoic acid or tretinoin, both derivatives of **vitamin A**, have been used to treat acne topically. [Id.]. These topical agents work by normalizing the **skin**'s production of keratin and the sebaceous glands production of sebum, thereby preventing obstruction of the follicle. Although highly effective, the. . .

SUMM A systemic **vitamin A** derivative for the treatment of nodular acne, known as isotretinoin, is commercially available under the name ACCUTANE.RTM., from Roche Laboratories. . .

SUMM . . . because of its ability to aid in wound healing, immune response, inflammation control, tissue regeneration, and more effective utilization of **vitamin A**. Certain studies have shown that zinc produces results similar to tetracycline in the treatment of superficial acne, but far superior. . . acne. [J. Whitaker, Dr. Whitaker's Guide to Natural Healing, 142 (1995)]. Also, certain nutrients, such as vitamin B.sub.6, selenium, and **vitamin E**, are thought necessary to healthy **skin** and, therefore, control acne. [Id.].

SUMM . . . 158 (1988)]. Additionally, herbs possessing antibiotic properties, such as burdock root and horsetail, may individually aid in the treatment of **skin** blemishes, such as acne. [D. Mowery, The Scientific Validation of Herbal Medicine, 32-33 (1986)].

SUMM . . . company, has been used in conjunction with a cleanser and topical cream to treat acne. The nutritional supplement contains zinc,

vitamin A, **vitamin C**, and other natural elements that are believed to nourish the **skin**. Also, it is suggested that high doses of **vitamin A** are not needed in AKNE-ZYME.TM. as long as other nutritional factors such as zinc, vitamin B.sub.6, selenium, and **vitamin E** are incorporated into the acne treatment. [J. Whitaker, Dr. Whitaker's Guide to Natural Healing, 141-142 (1995)].

SUMM . . . that the herbal extract be used in conjunction with supplements of one or more of the following nutrients and minerals: **vitamin A**, vitamin B.sub.1, vitamin B.sub.2, vitamin B.sub.6, vitamin B complex, **vitamin C**, **vitamin D**, **vitamin E**, niacinamide, pantothenic acid, para-aminobenzoic acid, biotin, choline, inositol, folic acid, zinc, calcium, magnesium, and potassium. The reference further notes the. . .

SUMM . . . the above references disclose methods of treating acne, the treatments often involve adverse side effects, such as overdrying of the **skin**. Furthermore, the above treatments simply address the acne and fail to condition the **skin** cells to assist in the treatment and to reduce further incidences of acne. Thus, it is desired to find pharmaceutical compositions and methods for treating acne by administering the pharmaceutical compositions and conditioning the **skin** to inhibit further acne outbreaks without the adverse side effects present in many conventional acne treatments. The present invention, through a blend of herbal extracts and nutritional supplements, advantageously treats acne without adverse side effects, and conditions **skin** cells to reduce the likelihood of further acne.

SUMM . . . comprising an acne reduction component in an amount sufficient to reduce the redness and blemishes associated with acne and a **skin** cell conditioning component in an amount sufficient to properly regulate the keratin and sebum production of the **skin** cells to inhibit the appearance of acne.

SUMM The **skin** cell conditioning component comprises a transition metal complex with an organic compound. In a preferred embodiment, the transition metal is. . .

SUMM The acne reduction component is a **vitamin A** source, a carotenoid component, a vitamin B.sub.6 source, and a zinc component. In a preferred embodiment, the **vitamin A** source is **vitamin A** complexed with an acetate or palmitate, the carotenoid component is beta-carotene, the vitamin B.sub.6 source is a pyridoxine, and the zinc component is zinc complexed with ascorbic acid or ascorbate. In a more preferred embodiment, the **vitamin A** source is **vitamin A** palmitate present in about 0.005 to 5 weight percent, beta-carotene is present in about 0.1 to 10 weight percent, the. . .

SUMM Another embodiment of the pharmaceutical composition also has at least one of a **vitamin C** source, burdock root, yellow dock root, horsetail extract, a catechin-based composition, a vitamin B.sub.1 source, a vitamin B.sub.2 source, a **vitamin B.sub.3** source, a vitamin B.sub.5 source, and a **vitamin E** source, all in an amount sufficient to facilitate maintenance of **skin** cells. In a preferred embodiment, the **vitamin C** source is ascorbic acid or ascorbate, the catechin-based composition is a proanthanol or proanthocyanidin, the vitamin B.sub.1 source is thiamin, the vitamin B.sub.2 source is riboflavin, the **vitamin B.sub.3** source is niacinamide, the vitamin B.sub.5 source is pantothenic acid, and the **vitamin E** source is a sulfate or succinate **vitamin E** complex. In a more preferred embodiment, the **vitamin C** source is calcium ascorbate present in about 1 to 30 weight percent, the burdock

root is present in about 1. . . in about 0.05 to 5 weight percent, the thiamin is present in about 0.05 to 5 weight percent and the **vitamin E** source is **vitamin E** succinate present in about 1 to 30 weight percent.

SUMM . . . one amino acid component, a magnesium component, a selenium component, and biotin in an amount sufficient to facilitate repair of **skin** damaged by acne. In a preferred embodiment, the amino acid component is L-lysine and L-proline, the magnesium component is magnesium. . .

SUMM . . . effective to reduce the redness and blemishes associated with acne. In addition, the invention relates to a method for conditioning **skin** cells in a treatment for acne, by administering these pharmaceutical compositions in an amount therapeutically effective to condition the **skin** to assist in reducing the redness and blemishes associated with acne.

SUMM . . . conjunction with concurrent or subsequent treatment by at least an additional pharmaceutical composition used to treat acne or condition the **skin**. In a preferred embodiment, the additional pharmaceutical composition is a topical application having at least one of: alcohol, benzoyl peroxide, erythromycin, clindamycin, tretinoin, **vitamin E**, and **vitamin A** or its derivatives; or an oral application having at least one of: erythromycin, tetracycline, isotretinoin, **vitamin C**, **vitamin D**, chaparral, dandelion root, licorice root, echinacea, kelp, cayenne, sassafras, elder flowers, pantothenic acid, para-aminobenzoic acid, biotin, choline, inositol, folic acid, calcium, magnesium, potassium and **Vitamin A** derivatives.

SUMM A pharmaceutical composition for treating acne and conditioning the **skin** cells has now been discovered. The pharmaceutical composition includes an acne reducing component in an amount sufficient to reduce the redness and blemishes associated with acne. Additionally, the present invention preferably includes a **skin** cell conditioning component in an amount sufficient to properly regulate the keratin and sebum production of the **skin** cells, thereby inhibiting or preventing the appearance of acne. The present pharmaceutical composition advantageously treats acne and conditions **skin** cells with reduced adverse side effects compared to conventional acne compositions and treatment methods. Also, the present invention relates to. . .

SUMM . . . present invention reduces acne in a patient by providing an acne reduction component that includes at least one of a **vitamin A** source, a carotenoid component, a vitamin B.sub.6 source, and a zinc component, in an amount sufficient to reduce the redness. . .

SUMM . . . associated with acne. Furthermore, the ability of zinc to aid in wound healing, immune response, tissue regeneration, and utilization of **vitamin A** make it an effective component in the composition and for the treatment of acne according to the invention. The zinc. . .

SUMM **Vitamin A** is necessary for healthy **skin** cell growth and tissue formation. Its function is to inhibit the production of excess **skin** cells that eventually flake off and tend to clog pores. The **vitamin A** source preferably is **vitamin A** complexed to an acetate or palmitate, and more preferably is **vitamin A** palmitate. The **vitamin A** source is present in about 0.005 to 5 weight percent, preferably in about 0.07 to 3 weight percent, more preferably in about 0.1 to 2 weight percent of the composition. A unit dose of the **vitamin A** source is typically about 0.1 to 5 mg, preferably about 0.5 to 4 mg, and more preferably is about 1 to 3 mg. **Vitamin A** is toxic at high levels, such that if **vitamin A** is taken in doses of more than 50,000 IU per day over a period of several months it can produce. . .

SUMM . . . such as beta-carotene, canthaxanthin, zeaxanthin, lycopen, lutein, crocetin, and capsanthin. Beta-carotene is a carotenoid that is predominantly found in the **skin**. Beta-carotene protects the integrity of the **skin** cells' structure, fights various **skin** conditions, and enhances the immune system. Carotenoids, preferably beta-carotene, are present in the pharmaceutical composition at about 0.1 to 10. . .

SUMM The present invention, in addition to the acne reducing component, preferably contains a **skin** cell conditioning component in an amount sufficient to properly regulate the sebum in the sebaceous glands and keratin production of the **skin** cells. This preferred embodiment of the pharmaceutical composition may be administered by any means, although oral administration is preferred.

SUMM The **skin** cell conditioning component activates enzymes that are involved in fat and glucose metabolism, which assists the **skin** cells in regulating the production of keratin and sebum. These enzymes increase the glucose intake of cells, thereby increasing the. . . Thus, the present invention attempts to prevent further acne breakouts by encouraging optimal performance of the sebaceous glands. Preferably, the **skin** cell conditioning component is a transition metal complex with an organic compound. Any transition metal can be used but those. . .

SUMM The **skin** cell conditioning component is present in about 0.001 to 5 weight percent, preferably about 0.002 to 3 weight percent, and more preferably about 0.005 to 1 weight percent of the pharmaceutical composition. A unit dose of the **skin** cell conditioning, such as a chromium component, is about 0.01 mg to 24 mg, preferably about 0.03 mg to 18. . .

SUMM The present invention more preferably contains at least one of the following: a **vitamin C** source, burdock root, yellow dock root, horsetail extract, a catechin-based component, a **vitamin B.sub.3** source, a vitamin B.sub.5 source, a vitamin B.sub.2 source, and a **vitamin E** source to aid in the maintenance of the **skin** cells.

SUMM The pharmaceutical composition includes a **vitamin C** source that includes an ascorbic acid, or pharmaceutically acceptable salt or ester thereof, and preferably includes ascorbyl palmitate, dipalmitate L-ascorbate,. . . is calcium ascorbate. When oral formulations of the pharmaceutical composition are used, it is preferred that a non-acidic form of **vitamin C** be used to reduce the stomach irritation that may occur when using an acidic form. The **vitamin C** source is present in the pharmaceutical composition in about 1 to 30 weight percent, preferably about 5 to 25 weight percent, and more preferably about 10 to 20 weight percent. A unit dose of this **vitamin C** source is typically about 50 mg to 800 mg, preferably about 60 mg to 600 mg, and more preferably about. . .

SUMM Yellow Dock, whose scientific name is Rumex crispus, is often used to treat **skin** disease, especially those involving some form of inflammation. The active constituents of yellow dock are rumicin and chrysarobin. Yellow Dock. . .

SUMM . . . that contains silica, starch, volatile oils, resin, and equisetic acid as active components. This herbal extract aids in detoxifying the **skin**, and also possesses antibiotic properties. Horsetail extract is present in about 1 to 20 weight percent, preferably about 2 to. . .

SUMM . . . within the pharmaceutical composition provides powerful antioxidants to scavenge free radicals. These antioxidants are approximately 20 times more effective than **vitamin C** and approximately 50 times more effective than **vitamin E** in scavenging free radicals to prevent the **skin** from being damaged. The catechin-based preparation is preferably a

proanthanol or a proanthocyanidin, more preferably a proanthanol, and most preferably. . .

SUMM . . . sources. Vitamin B.sub.1, also commonly known as thiamine, aids carbohydrate metabolism, as well as the growth and maintenance of healthy **skin**. Both vitamin B.sub.2 and B.sub.3 are involved in tissue repair. Vitamin B.sub.2, also commonly known as riboflavin, is involved in both the protein and the liquid metabolism necessary to rebuild damaged **skin** tissues. Moreover, **Vitamin B.sub.3** acts as a vasodilator, increasing the blood flow to the **skin** and other tissues. **Vitamin B.sub.3** includes several vitamin B complexes, such as niacin, nicotinic acid, niacinamide, and nicotinamide. Preferably, niacinamide is used in the present. . . several metabolic functions. All of the above vitamin B complexes also enhance the effectiveness of vitamin B.sub.6 in treating the **skin**. Preferably, the B.sub.5 source is pantothenic acid. Each of these vitamin B complexes may be found in the present pharmaceutical. . .

SUMM Also, a **vitamin E** source, which maintains the strength and proper functioning of cells and **skin** tissue membranes, may be included in the present invention. The **vitamin E** source is preferably a sulfate or succinate **vitamin E** complex, more preferably a D-alpha tocopherol acid succinate. The **vitamin E** source is present in about 1 to 30 weight percent, preferably about 6 to 25 weight percent, and more preferably about 7 to 20 weight percent of the pharmaceutical composition. The unit dose of the **vitamin E** source is typically about 40 mg to 650 mg, preferably about 60 mg to 500 mg, and more preferably about. . .

SUMM These ingredients preferably include at least one amino acid to assist in repairing acne damage to the **skin**. Preferably, two or more amino acids are used. Lysine and proline are the most preferred amino acids and are advantageously. . .

SUMM The magnitude of a prophylactic or therapeutic dose of the composition in the treatment of acne damage to **skin** will vary with the sensitivity of the patient's **skin** and the route of administration. The dose, and perhaps the dose frequency, will also vary according to the age, body. . . mg to 1,600 mg per day. In a preferred form, the invention is used to treat acne and condition the **skin** cells. The oral formulation of the present invention may be used alone or in conjunction with other acne treatments.

DETD

INGREDIENTS	MG PER PERCENT BY WEIGHT	CHEMICAL OR SCIENTIFIC NAME
Vitamin E Succinate (63.1%)	158.5	13.4% D-alpha tocopheryl acid succinate
L-Lysine Hcl (80.0%)	13.2%	L-Lysine hydrochloride
Calcium Ascorbate (81.0%)	154.3	13.0% Calcium ascorbate
Burdock Root. . . Oxide (60.0%)	7.0%	Magnesium oxide

Zinc Ascorbate (15.0%)
2.1%
Zinc ascorbate
Vitamin B.sub.6 (Pyridoxine HCL)
15.1 1.3%
Pyridoxine hydrochloride
(82.7%)
Grape Seed Extract
1.1%5
Proanthocyanidins
Vitamin B.sub.3 (Niacin)
12.5
1.1%
Niacinamide
Beta Carotene (yields 1,250
10.0
0.9%
Beta carotene
IU per tablet)
Selenomethionine (0.5%)
0.8%
L-selenomethionine
Biotin (1.0%) 0.6% 7.5
Biotin
Vitamin. . . Riboflavin
Vitamin B.sub.1 (Thiamine)
6.3
0.5%
Thiamine
CHROMEMATE CHROMIUM GTF .TM.
6.3 0.5%
Chromium polynicotinate
(0.2%) Chromium organically bound
to nicotinic acid (niacin,
vitamin B.sub.
3)
Vitamin A Palmitate (yields
2.5
0.2%
Vitamin A palmitate
1,250 IU per tablet)
Chromium Picolinate (12.0%)
0.1
0.01%
Chromium picolinate

DETD . . . All of the panelists exhibited grade two comedonal/inflammatory acne according to the Acne Grading Scale and were free from any **skin** disorders other than moderate acne. The panelists were instructed to take two tablets in the morning and two in the. . .

CLM What is claimed is:

. . . at least one of a zinc compound in an amount greater than 15 mg to about 96 mg or a **Vitamin A** source in an amount sufficient to reduce the redness and blemishes associated with acne; at least one of burdock root yellow dock root, or a catechin-based composition in an amount sufficient to facilitate maintenance of **skin** cells; and a **skin** cell conditioning component comprising a transition metal other than zinc in an amount sufficient to properly regulate the keratin and sebum production of the **skin** cells to inhibit the appearance of acne.

6. The pharmaceutical composition of claim 5, wherein the

vitamin A source comprises **vitamin A** complexed with an acetate or palmitate, the carotenoid component comprises beta-carotene, the vitamin B.sub.6 source comprises a pyridoxine, and the. . .

7. The pharmaceutical composition of claim 6, wherein the **vitamin A** source is **vitamin A** palmitate present in about 0.005 to 5 weight percent, beta-carotene is present in about 0.1 to 10 weight percent, the. . .

9. The pharmaceutical composition of claim 1, further comprising at least one of a **vitamin C** source, horsetail extract, a vitamin B.sub.1 source, a vitamin B.sub.2 source, a **vitamin B.sub.3** source, a vitamin B.sub.5 source, and a **vitamin E** source, all in an amount sufficient to facilitate maintenance of **skin** cells.

10. The pharmaceutical composition of claim 9, wherein the **vitamin C** source comprises ascorbic acid or ascorbate, the catechin-based composition comprises a proanthanol or proanthocyanidin, the vitamin B.sub.1 source comprises thiamin, the vitamin B.sub.2 source comprises riboflavin, the **vitamin B.sub.3** source comprises niacinamide, the vitamin B.sub.5 source comprises pantothenic acid, and the **vitamin E** source comprises a sulfate or succinate **vitamin E** complex.

11. The pharmaceutical composition of claim 10, wherein the **vitamin C** source is calcium ascorbate present in about 1 to 30 weight percent, the burdock root is present in about 1. . . in about 0.05 to 5 weight percent, the thiamin is present in about 0.05 to 5 weight percent and the **vitamin E** source is **vitamin E** succinate present in about 1 to 30 weight percent.

. . . one amino acid component, a magnesium component, a selenium component, and biotin in an amount sufficient to facilitate repair of **skin** damaged by acne.

15. A method for conditioning **skin** cells in a patient which comprises administering: an acne reduction component comprising at least one of a zinc compound or a **Vitamin A** compound; at least one of burdock root, yellow dock root, or a catechin-based composition in an amount sufficient to facilitate maintenance of **skin** cells; and a **skin** cell conditioning component comprising a transition metal other than zinc, said components administered in an amount therapeutically effective to regulate the keratin and sebum production of the **skin** cells and to reduce the redness and blemishes associated with acne.

. . . conjunction with concurrent or subsequent treatment by at least an additional pharmaceutical composition used to treat acne or condition the **skin**.

. . . wherein the additional pharmaceutical composition is: a topical application comprising at least one of: alcohol, benzoyl peroxide, erythromycin, clindamycin, tretinoin, **vitamin E**, and **vitamin A** or its derivatives; or an oral application comprising at least one of: erythromycin, tetracycline, isotretinoin, **vitamin C**, **vitamin D**, chaparral, dandelion root, licorice root, echinacea, kelp, cayenne, sassafras, elder flowers, pantothenic acid, para-aminobenzoic acid, biotin, choline, inositol, folic acid, calcium, magnesium, potassium and **Vitamin A** derivatives.

L3 ANSWER 9 OF 17 USPATFULL

TI Pharmaceutical compositions and methods for improving wrinkles and other **skin** conditions

PI US 5804594 19980908 <--

AB This application relates to a pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient having a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**, a primary antioxidant component in an amount sufficient to substantially inhibit the formation of collagenase and elastase, at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**, and at least one transition metal component in an amount effective to bind collagen and elastic fibers and rebuild **skin** . In one preferred form, the composition further includes a catechin-based preparation, a glucosamine or a pharmaceutically acceptable salt or ester. . . a chondroitin or a pharmaceutically acceptable salt or ester thereof. In a more preferred form, the invention further includes a **vitamin E** source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source. The invention further relates to a method for the prevention or treatment of **skin** conditions by administering the pharmaceutical composition in an amount therapeutically effective to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

SUMM . . . well as methods, to supplement collagen and elastic tissues and thicken the dermis for the treatment of wrinkles and other **skin** conditions.

SUMM Human **skin** is a composite material of the epidermis and the dermis. The topmost part of the epidermis is the stratum corneum. This layer is the stiffest layer of the **skin**, as well as the one most affected by the surrounding environment. Below the stratum corneum is the internal portion of. . . the dermis is the papillary dermis, which is made of relatively loose connective tissues that define the micro-relief of the **skin**. The reticular dermis, disposed beneath the papillary dermis, is tight, connective tissue that is spatially organized. The reticular dermis is. . .

SUMM The principal functions of the **skin** include protection, excretion, secretion, absorption, thermoregulation, pigmentogenesis, accumulation, sensory perception, and regulation of immunological processes. These functions are detrimentally affected by the structural changes in the **skin** due to aging and excessive sun exposure. The physiological changes associated with **skin** aging include impairment of the barrier function and decreased turnover of epidermal cells, for example. [Cerimele, D., et al., Br.. . .

SUMM The mechanical properties of the **skin**, such as elasticity, are controlled by the density and geometry of the network of collagen and elastic fiber tissue therein. Damaged collagen and elastin lose their contractile properties, resulting in **skin** wrinkling and **skin** surface roughness. As the **skin** ages or becomes unhealthy, it acquires sags, stretch marks, bumps, bruises or wrinkles, it roughens, and it has reduced ability to synthesize **Vitamin D**. Aged **skin** also becomes thinner and has a flattened dermoepidermal interface because of the alterations in collagen, elastin, and glycosaminoglycans. [Fenske, N.. . .

SUMM A variety of vitamins and minerals have in individually been administered to treat certain **skin** and other problems that occur when the patient has a deficiency of that vitamin or mineral. **Vitamin A**, for example, assists in the treatment of acne and to facilitate wound healing; **vitamin C**

(ascorbic acid) assists in the prevention of **skin** bruising and wound healing; **vitamin E** is an antioxidant; and copper assists in the treatment of elastic tissue defects. [Neldner, K. H., Amer. Acad. Derm. Annl. Mtg., Wash D.C., Dec. 6, 1993]. Topical use of **vitamin C** is also believed to ward off sun damage, reduce breakdown of connective tissues, and possibly promote collagen synthesis. [Dial, W., Medical World News, p. 12, March 1991]. **Vitamin E** is used topically as an anti-inflammatory agent, for enhancement of **skin** moisturization, for UV-ray protection of cells, and for retardation of premature **skin** aging.

SUMM . . . metabolism of glycosaminoglycans under the influence of herbal and other anti-inflammatory agents has been examined by measuring glycosaminoglycans in the **skin**, liver, kidney, and spleen after administration of several compounds. [Reddy, G. K., et al., Biochem. Pharmacology, 38(20):3527-3534 (1989)].

SUMM . . . a patient, various of the above ingredients have been combined to form pharmaceuticals designed to prevent and treat certain cellular, **skin**, and other conditions. For example, U.S. Pat. No. 3,773,930 discloses a low residue, dietary composition having at least one amino. . .

SUMM U.S. Pat. No. 4,414,202 discloses a composition for the treatment of **skin** wounds with a buffered salt solution having a pH between 6 to 7.8 and administering a starch hydrolysate compound, and. . .

SUMM U.S. Pat. No. 4,424,232 discloses a topical composition for the treatment of herpes simplex, cold sores, lesions, and other painful **skin** conditions including L-lysine, gibberellic acid, and urea in an inert carrier having water. The composition may also include L-ascorbic acid,. . .

SUMM U.S. Pat. No. 5,198,465 discloses a composition for treating precursor deficiencies in the synthesis of collagen with proline, glycine, lysine, **vitamin C**, and one or more compounds selected from a-ketoglutaric acid, methionine, cysteine, cystine, valine, and pharmaceutically acceptable diluents and excipients.

SUMM . . . complexes; an enzyme producer such as an amino acid like glutamic acid; an herbal antispasmodic substance like Valerian root; and **vitamin C**.

SUMM U.S. Pat. No. 5,415,875 discloses a method of suppressing formation of lipid peroxide and removing peroxide by applying to the **skin** a decomposed product of shell membrane and tocopherol and derivatives. Lysine, proline, **Vitamin C**, for examples, are listed among a vast genus of optional additives.

SUMM The above references, however, do not teach pharmaceutical compositions or methods for improving **skin** wrinkles along with other conditions, such as **skin** elasticity and softness. Thus, it is desired to find a pharmaceutical composition and a method for the prevention and treatment of wrinkles and other **skin** conditions. The present invention advantageously provides pharmaceutical compositions, as well as methods of treatment comprising the administration of such compositions, to repair **skin** for the prevention and treatment of wrinkles and other **skin** disorders.

SUMM The present invention relates to a pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient having a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**, a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase, at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**, and at least one transition metal component in an amount effective to bind collagen and elastic fibers and rebuild **skin** .

SUMM In another preferred embodiment, the composition further includes a

vitamin E source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source. In a more preferred embodiment, the **vitamin E** is D-alpha tocopheryl acid succinate present in about 1 to 15 weight percent, the **vitamin B.sub.3** is niacinamide present in about 0.5 to 15 weight percent, the **vitamin A** is **vitamin A** palmitate present in about 0.1 to 5 weight percent, the cysteine is N-acetyl cysteine present in about 1 to 10. . .

SUMM The invention further relates to a method for the prevention or treatment of **skin** conditions, wherein the **skin** has a thickness of dermis and collagen, which includes administering the pharmaceutical composition above in an amount therapeutically effective to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

SUMM In one embodiment according to the invention, the **skin** condition treated is at least one of wrinkles, fine lines, thinning, reduced **skin** elasticity, reduced **skin** moisture, spider veins, senile purpura, sun damaged **skin**, aging **skin**, or rough **skin**. In another embodiment, the composition is administered orally. In a preferred embodiment, the composition is administered as a tablet or. . .

SUMM . . . conjunction with concurrent or subsequent treatment by at least one additional pharmaceutical composition for the prevention or treatment of a **skin** condition.

SUMM A formulation for the reduction of wrinkles and the improvement of other **skin** conditions, such as increased **skin** elasticity and **skin** softness, has now been discovered. Moreover, the prevention or treatment of unhealthy **skin**, such as aged **skin** or **skin** overexposed to sunlight, may advantageously be accomplished by the administration of the pharmaceutical composition of the present invention to a. . . pharmaceutical composition includes the combination of a number of different components which interact to provide the desired improvements to the **skin**.

SUMM The advantageous pharmaceutical composition of the present invention prevents and improves **skin** conditions by using a sufficient amount of at least one sugar compound which is converted into glycosaminoglycans in the bloodstream,. . . supplementing collagen and elastic tissues. A thicker dermis desirably reduces the wrinkling and lines that occur when areas of the **skin** become thin. Various amino acids such as lysine, proline and cysteine assist in the thickening of the dermis, supplementing of collagen and elastic tissues and, consequently, reduction of wrinkles and other **skin** conditions. Additionally, antioxidants, such as **vitamin C**, inhibit collagenase and elastase, enzymes that break down collagen and elastic tissues. These antioxidants assist in the prevention of additional wrinkles and facilitate the healing of **skin** tissues. Finally, transition metal components are included to bind collagen fibers and inhibit elastase, an enzyme that also breaks down. . .

SUMM The pharmaceutical composition includes a primary antioxidant, which typically is a **vitamin C** source and preferably is ascorbic acid, or a pharmaceutically acceptable salt or ester thereof, and more preferably is ascorbyl palmitate,. . . or mixtures thereof. When oral formulations of the pharmaceutical composition are used, it is preferred that a non-acidic form of **vitamin C** be used to reduce the stomach irritation that may occur when using an acidic form. The **vitamin C** source is present in the pharmaceutical composition in about 5 to 50 weight percent, preferably about 7 to 40 weight percent, and more preferably about 10 to 25 weight percent. A unit dose of this primary **vitamin C**

source is typically about 40 mg to 400 mg, preferably about 60 mg to 300 mg, and more preferably about 80 to 150 mg. **Vitamin C** is also approved by the FDA and has wide consumer acceptance, so that it can be used in amounts as. . .

SUMM The pharmaceutical composition also includes at least one amino acid to assist in thickening the **skin**. Preferably two or more amino acids are used in combination. Either the L- or D- forms of amino acids are. . .

SUMM . . . or more transition metal compounds are included in an amount effective to bind collagen and elastic tissue to rebuild the **skin**. Certain transition metal compounds inhibit the elastase enzyme to inhibit collagen and elastic tissue breakdown. Preferred transition metals include zinc,. . .

SUMM . . . assist in binding collagen and elastic fibers, which both assists in the prevention of wrinkles and the rebuilding of wrinkled **skin**. The zinc component may be any zinc compound or pharmaceutically acceptable salt thereof, but more preferably is a zinc complexed. . .

SUMM . . . or pharmaceutically acceptable salt thereof, but more preferably is a manganese component which is at least partially complexed with a **vitamin C** source, and most preferably is manganese ascorbate or manganese ascorbic acid, wherein the manganese is typically present in about 5 to 20 weight percent of the complex. When complexed with **vitamin C**, this **vitamin C** source may be included in the overall percentage of **vitamin C** in the pharmaceutical composition. The manganese component is present in about 1 to 10 weight percent, more preferably about 2. . .

SUMM The catechin-based preparation, similar to **vitamin C**, inhibits elastase and collagenase, which is another enzyme that attacks elastic tissue and collagen. The catechin-based preparation is preferably a. . .

SUMM . . . 90 weight percent of the salt. The glucosamine content of this component contributes to the formation of glycosoaminoglycans in the **skin**. The chondroitin component preferably is present as a sulfate or succinate, and more preferably is chondroitin sulfate, wherein the chondroitin. . .

SUMM In a more preferred form, several optional additives are included in the pharmaceutical composition, such as a **vitamin E** source, a **vitamin B.sub.3** source, quercetin powder, pyridoxal 5 phosphate-Co B.sub.6, and a **vitamin A** source. The **vitamin E** preferably is a sulfate or succinate **vitamin E** complex, and more preferably is D-alpha tocopheryl acid succinate. The **vitamin E** source is present in about 1 to 15 weight percent, preferably about 2 to 12 weight percent, and more preferably. . . 10 weight percent of the composition. In any event, no more than 1,500 IU should be ingested per day, as **Vitamin E** becomes toxic at higher doses. The **vitamin B.sub.3** source preferably is niacinamide, and the source is present in about 0.5 to 15 weight percent, preferably about 1 to 12 weight percent, and more preferably about 1.5 to 10 weight percent of the composition. The **vitamin A** source preferably is **vitamin A** palmitate, and the source is present in about 0.1 to 5 weight percent, preferably 0.2 to 3 weight percent, and more preferably 0.3 to 1 weight percent of the composition. In the more preferred form, the amount of **vitamin A** dosage is about 500,000 IU / gram per unit dose. **Vitamin A** is toxic at high levels, such that no more than 400,000 IU should be cumulatively ingested per day for greater. . .

SUMM . . . amount" means that amount of the pharmaceutical composition that provides a therapeutic benefit in the treatment, prevention, or

management of **skin** wrinkles and other **skin** conditions.

DETD

Ingredient	Weight Percent (% w/w)	Amount (mg)	Chemical or Scientific Name (if different)
N-Acetylglucosamine	17.1	140	N-Acetyl D-Glucosamine
Vitamin C (81.2% Ascorbic Acid)	15	123.2	
L-Lysine (80%)	12.2	100	L-Lysine hydrochloride
L-Proline	11	90	
D-Glucosamine Sulfate (75%)	6.5	53.3	
Chondroitin Sulfate (80%)	6.1	50	
Vitamin E Succinate	4.3	39.7	D-.alpha. tocopheryl acid succinate
Zinc monomethionine (20%)	3.7	30	Zinc DL-methionine
N-Acetyl Cysteine	3.7	30	
Manganese Ascorbate (13% Mn)	2.8	23.1	
Vitamin B.sub.3 Niacinamide	2.4	20	Niacinamide
Quercetin Powder	2.4	20	Quercetin dihydrate
Grape Seed Extract	0.9	7.5	Proanthocyanidin
Pyridoxal 5 Phosphate-Co B.sub.6	0.6	5	P-5-P monohydrate
Selenoinethionine (0.5%)	0.5	4	L-selenomethionine
Vitamin A Palmitate (500,000 IU/GR)	0.5	4	
Copper Sebacate (14%)	0.4	2.9	
Red beet root powder	6.1	50	Beta vulgaris rubra
Stearic acid	1.5	12	
Sorbitol	1.3.	.	.

DETD . . . 73 female subjects to determine the effects on the elasticity, firmness, and presence of fine lines and wrinkles of the **skin**. A seven day conditioning period was used prior to initiation of the study, where subjects were instructed to discontinue use. . .

DETD The texture of the **skin**, fine lines, and wrinkles were

assessed by taking Silflo replicas of the periorbital area (crow's feet) at each of the. . . replicas, were illuminated at a precisely defined angle of 350 to create shadows for analysis by shades of gray. The **skin** topography is defined by the: (a) number of wrinkles; (b) total area of wrinkles; (c) total length of wrinkles; (d). . .

DETD . . . is a function of the length of treatment as indicated above. This strongly suggests the treatment has imparted an improved **skin** infrastructure by beneficially affecting the dermis of the **skin**.

DETD The Ballistometer is an instrument designed to evaluate in vivo, in a non-invasive manner, the viscoelastic properties of the **skin**. It analyzes the bounce pattern displayed by a probe that is allowed to impact on the **skin**. The kinetic energy of the probe striking the **skin** is stored by the elastic components of the **skin** and released back to make the probe rebound to a lower height. The height to which the probe will rebound depends upon the amount of stored energy lost in shear viscosity within the **skin** .

DETD The capacity of the **skin** to absorb mechanical energy may thus be measured. Although it is unclear exactly which layer, or layers, of the **skin** are responsible, the mechanical properties of the dermis/epidermis layers are controlled by the density and geometry of the network of. . .

DETD . . . less of the energy of the striking probe was restored, thus, a greater amount of energy was dissipated in the **skin**. This suggests the **skin** became softer and more yielding during the test period.

DETD The Cutometer is a commercially available instrument (Courage & Khazaka, Germany) designed to measure the mechanical properties of the **skin** in a non-invasive manner. It measures the vertical deformation of the **skin**'s surface when pulled by vacuum suction (500 mm Hg) through the small aperture (2 mm) of a probe and the depth of penetration of the **skin** into the probe optically with an accuracy of 0.01 mm. The probe is attached to a computer, which completely controls probe operation and plots **skin** deformation as a function of time. From this curve, a number of variables can be extrapolated to estimate the elastic, viscoelastic, and purely viscous behavior of the **skin**.

DETD . . . final distension (U.sub.f), measured at 10 seconds; and (d) immediate retraction (U.sub.r). The deformation parameters are extrinsic parameters dependent on **skin** thickness, and a variety of biologically important ratios were calculated: (a) U.sub.r /U.sub.f, a measure of net elasticity of the **skin**; (b) U.sub.r /U.sub.c, the biological elasticity, or measurement of the ability of the **skin** to regain its initial configuration after deformation; and (c) U.sub.v /U.sub.c, the viscoelastic to elastic ratio, where an increase in. . .

DETD . . . distension (U.sub.v) decreased a significant 16 percent ($p<0.04$) after 5 weeks of treatment. This parameter reflects viscoelastic properties of the **skin** and, thus, the behavior of the dermis. After 5 weeks, there were no statistically significant changes in U.sub.c, the immediate. . .

DETD The general appearance of soft, smooth **skin** depends largely on the presence of an adequate amount of water in the stratum corneum. The Corneometer is a commercially available instrument (Courage & Khazaka, Germany) to measure the changes in capacitance of the **skin** resulting from changes in the degree of hydration. It is particularly sensitive to low levels of hydration, and uses measurements of arbitrary units of **skin** hydration (H) to express capacitance.

DETD . . . moisturizing agents and humectants. Thus, the measurements with the Ballistometer and Cutometer indicate changes occurred in deeper layers of the **skin**, rather than the superficial stratum

corneum. Table IV shows no significant changes in the hydration of the stratum corneum following. . .

DETD TABLE IV

Corneometer Readings

	Skin Hydration (H)			
	Mid-Baseline		Final-Baseline	
	Control			
	Treated	Control	Treated	
Average	-5	-7	-8	-4
Standard Deviation	6	7	5	7
p value	p <. . .			

CLM What is claimed is:

1. An orally administered pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient comprising the following components: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin**; and a catechin-based component present in an amount sufficient to inhibit the presence of anti-collagen enzyme in the **skin**.

10. The pharmaceutical composition of claim 7, further comprising a **vitamin E** source, a cysteine source, a **vitamin B.sub.3** source, quercetin dihydrate, pyridoxal 5 phosphate-Co B.sub.6, a methionine source, and a **vitamin A** source.

11. The pharmaceutical composition of claim 10, wherein the **vitamin E** is D-alpha tocopheryl acid succinate present in about 1 to 15 weight percent, the **vitamin B.sub.3** is niacinamide present in about 0.5 to 15 weight percent, the **vitamin A** is **vitamin A** palmitate present in about 0.1 to 5 weight percent, the cysteine is N-acetyl cysteine present in about 1 to 10. . .

12. An orally administered pharmaceutical composition for the prevention and treatment of **skin** conditions in a patient comprising: an N-acetylglucosamine compound, or a pharmaceutically acceptable salt or ester thereof, present in about 5. . . metal compound is zinc, manganese, or copper, or mixtures thereof, present in about 0.5 to 15 weight percent to thicken **skin**.

13. A method for the prevention or treatment of **skin** conditions, wherein the **skin** has a thickness of dermis and collagen, which comprises orally administering to a patient a pharmaceutical composition comprising: a sugar compound that is converted to a glycosaminoglycan in the patient in an amount sufficient to thicken the **skin**; a primary antioxidant component in an amount sufficient to substantially inhibit the activity of collagenase and elastase; at least one amino acid component in an amount sufficient to assist in the thickening of the **skin**; and at least one transition metal component in an amount effective to bind collagen and elastic fibers and thicken **skin**, said composition administered in an amount therapeutically effective to modify the thickness of the **skin** to prevent or treat at least one **skin** condition.

14. The method of claim 13, wherein the **skin** condition prevented or treated is at least one of wrinkles or the appearance thereof, fine lines or the appearance thereof, thinning, reduced **skin** elasticity, reduced **skin** moisture, spider veins, senile purpura, sun damaged **skin**, aging **skin** or rough **skin**.

. . . conjunction with concurrent or subsequent treatment by at least one additional pharmaceutical composition for the prevention or treatment of a **skin** condition.

. . . comprising providing a catechin-based component present in an amount sufficient to inhibit the presence of an anti-collagen enzyme in the **skin**.

L3 ANSWER 10 OF 17 USPATFULL

TI **Skin** protection, fragrance enhancing and vitamin delivery composition

PI US 5728372 19980317 <--

AB The present invention provides a composition having enhanced **skin** protection against ultraviolet rays comprising at least one sunscreen composition and at least one polysaccharide alkylether which includes at least. . . hydroxyl group substituted with a saturated C.sub.1 -C.sub.24 alkyl chain. The present invention also provides a method for enhancing the **skin** protection properties of sunscreen compositions. The present invention further provides an anhydrous composition for delivering one or more vitamins to the **skin** including at least one vitamin composition and at least one polysaccharide alkylether having at least two different moieties and at. . . saturated C.sub.1 -C.sub.24 alkyl chain. The present invention also provides a method for delivering one or more vitamins to the **skin**.

SUMM This invention is directed to a composition having enhanced **skin** protection properties against ultraviolet rays, and a method of enhancing the **skin** protection properties of sunscreen compositions. This invention is also directed to a composition for extending the longevity of fragrance on the **skin**, and a method for extending the longevity of fragrance on the **skin**. This invention is also directed to an anhydrous composition for delivering one or more vitamins to the **skin**, and a method for delivering one or more vitamins to the **skin**.

SUMM The damaging effect of the sun's ultraviolet radiation on the **skin** is well known. Accordingly, many **skin** protection products have been developed which contain various materials intended to block or absorb ultraviolet rays, thereby preventing or lessening damage to the **skin**. Typically, such products are oil-in-water or water-in-oil emulsions and anhydrous systems containing sunscreens or ultraviolet radiation filters, and the compositions are topically applied to the **skin**. The relative **skin** protection afforded by such compositions is typically measured by means of determining a "sun protection factor" or SPF for the. . .

SUMM . . . that there is a relationship between the rheological properties of such emulsions and the SPF of the composition. Since the **skin** is not a flat surface, but rather has a topography made up of irregular peaks and valleys, it is believed. . . emulsion are relatively minimal. Oils typically exhibit Newtonian viscosity (i.e., non-shear sensitive), which is not very effective in covering the **skin**. Accordingly, the rheological properties of traditional **skin** protection emulsions based upon water-soluble rheological additives are greatly reduced as water evaporation from the **skin** takes

place. The remaining oil phase provides a less effective covering of the **skin**, with concurrent reduction in protection from ultraviolet rays. Thus, it would be advantageous to prepare a **skin** protection composition which is an emulsion having enhanced SPF and which avoids the above-described problems.

SUMM . . . alkyl chain have enhanced SPF properties. Accordingly, it is one object of this invention to provide a composition having enhanced **skin** protection properties from ultraviolet radiation. It is another object of this invention to provide a method of enhancing the **skin** protection properties from ultraviolet radiation using such a composition. It is a feature of the composition and method of this. . . chain. This invention is advantageous in that the use of the oil soluble polymer enhances the SPF capability of the **skin** protection composition. While not wishing to be bound by any theory, it is believed that incorporation of this oil soluble polymer into the oil phase increases viscosity and provides film forming properties that enhance SPF activity on **skin**.

SUMM The use of various fragrance-bearing compositions on the **skin** has been known for centuries. However, improving the duration of fragrances on the **skin** has always posed a challenge. In the past, attempts have been made to introduce various materials into fragrance compositions to. . . compositions, and changes in the character of the fragrance have all impaired improvement of the longevity of fragrance on the **skin**. Accordingly, it would be advantageous to prepare a composition capable of imparting fragrance to the **skin** and capable of extending the longevity of the fragrance on the **skin**.

SUMM . . . group substituted with a saturated C.sub.1 -C.sub.24 alkyl chain are capable of extending the longevity of the fragrance to the **skin**. Accordingly, it is another object of this invention to provide a composition for extending the longevity of fragrance on the **skin**. It is another object of this invention to provide a method of extending the longevity of fragrance on the **skin** using such a composition. It is a feature of the composition and method of this invention that the composition contains. . . advantageous in that the use of the polysaccharide alkylether oil soluble polymer extends the longevity of fragrance imparted to the **skin** by the fragrance composition.

SUMM The delivery of various vitamins to the **skin** is known to be beneficial. For example, **vitamin C** (i.e., ascorbic acid) and **vitamin E** (i.e., tocopherol) are well known **skin** care ingredients with proven beneficial free radical scavenger and antioxidant properties. However, to be effective these and other vitamins must be delivered to the **skin** in the active form. For example, **vitamin E** is oil soluble, but **vitamin C** is water soluble and is very unstable in water, degrading very rapidly. Thus, effective delivery of **vitamin C** to the **skin** in an aqueous system is very difficult to achieve. Accordingly, the use of anhydrous or essentially anhydrous systems to deliver effective amounts of **vitamin C** to the **skin** have been attempted.
Such systems have employed materials such as petrolatum, waxes, fatty alcohols, fatty acids, polyethylenes and low HLB. . . properties. Thus, it would be advantageous to prepare an anhydrous composition capable of delivering one or more vitamins to the **skin** which has good stability and cosmetic application properties.

SUMM . . . saturated C.sub.1 -C.sub.24 alkyl chain are capable of delivering the vitamin, including combinations of vitamins C and E, to the **skin**. Accordingly, it is yet another object of this invention to provide an anhydrous composition for delivering one or more vitamins to the **skin**. It is another object of this invention to provide a method for delivering one or more vitamins to the

skin using such a composition. It is a feature of the composition and method of this invention that the composition contains. . . use of the polysaccharide alkylether oil soluble polymer provides a stable, cosmetically acceptable vehicle for delivery of vitamins to the **skin**.

SUMM A composition for having enhanced **skin** protection from ultraviolet rays comprises at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two. . . sunscreen composition comprises one or more materials capable of filtering, blocking or absorbing ultraviolet rays. A method for enhancing the **skin** protection properties of sunscreen formulations against ultraviolet rays comprises applying to the **skin** a composition comprising at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

SUMM A composition for extending the longevity of fragrance on the **skin** comprises at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties and at. . . composition comprises one or more materials having a fragrant odor. A method for extending the longevity of fragrance on the **skin** comprises applying to the **skin** a composition comprising at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

SUMM An anhydrous composition for delivering one or more vitamins to the **skin** comprises at least one vitamin and at least one polysaccharide alkylether comprising at least two different moieties and at least one hydroxyl group substituted with a saturated C.sub.1 -C.sub.24 alkyl chain. The composition for delivering vitamins to the **skin** comprises at least one vitamin. For example, the composition may comprise **vitamin C, vitamin E,** or a combination thereof. A method for delivering one or more vitamins to the **skin** comprises applying to the **skin** a composition comprising at least one vitamin and at least one polysaccharide alkylether comprising at least two different moieties and. . .

SUMM All of these compositions are most preferably topically applied to the **skin**. The polysaccharide alkyl ether has a weight average molecular weight in the range of 1 to 1,000,000, preferably 1 to. . .

SUMM The **skin**-protection enhancing composition of this invention comprises at least one sunscreen composition and at least one oil soluble polymer which is. . .

SUMM . . . MCX, manufactured by Givaudan, and UVINUL M-40, a benzophenone-3 product manufactured by BASF. The sunscreen composition is employed in the **skin**-protection enhancing composition in a concentration range approved by the United States Food and Drug Administration (FDA). A sunscreen such as. . . OMC is employed in a concentration range of 2 to 7.5 weight percent, based on the total weight of the **skin** protection formulation. Benzophenone-3 is employed in a concentration range of 2 to 6, preferably 2 to 3 weight percent, based on the total weight of the **skin** protection formulation.

SUMM . . . Inc. under the AQUALON trade name, most preferably AQUALON AQU-D-3360-L and AQU-3360-H. The polysaccharide alkylether is employed in the enhanced **skin** protection composition in a concentration range of about 0.5 to 10 weight percent, based upon the total weight of the **skin** protection formulation. The invention may be employed in an anhydrous sun protection formulation as well as in oil-in-water or water-in-oil. . .

SUMM The following examples illustrate various preferred embodiments of the enhanced **skin** protection composition of this invention. It will be understood that the following examples are illustrative and are

not meant to. . .

DETD . . . being bound by any one theory, it is expected that use of the polysaccharide alkylether oil soluble polymer in the **skin** protection composition of this invention enables the oil-soluble ultraviolet filter or sunscreen material contained in the composition to be distributed more uniformly on the **skin** topography. It is also expected that the rheological properties are improved and made more flexible with respect to oil phases. . . composition. It is also expected that use of the polysaccharide alkylether prolongs the activity of the sunscreen composition on the **skin**, and reduces the penetration of oil-soluble sunscreen composition into the **skin** , thereby lowering the potential of **skin** irritation due to such penetration. It is also expected that use of the polysaccharide alkylether will enable the level or concentration of the sunscreen or ultraviolet radiation filter material to be reduced in the **skin** protection composition, thereby reducing the cost and possible harmful side effects of such materials. It is also expected that use of the polysaccharide alkylether will impart improved water-resistant properties to the **skin**-protection composition, thereby enhancing its use at the beach, pools, while swimming and the like.

DETD . . . polysaccharide alkylether employed in the fragrance extending composition of this invention is as described above with respect to the enhanced **skin** protection composition embodiment of this invention. The absence of any chemical odor in the oil soluble and lipophilic polymer makes. . .

DETD . . . fragrance duration. Formula D prepared in accordance with the invention was found to exhibit significantly longer fragrance duration on the **skin** as compared with control formula E.

DETD . . . Preliminary evaluation tests confirmed that formulation B prepared in accordance with the invention exhibited significantly longer fragrance duration on the **skin**.

DETD . . . alkylether employed in the vitamin delivery composition embodiment of this invention is as described above with respect to the enhanced **skin** protection composition and fragrance-enhancing embodiments of this invention. The oil soluble polymer may be present in the vitamin-delivery composition embodiment. . .

DETD Vitamins which may be employed in this embodiment of the invention include, but not limited to, **vitamin A**, pro **vitamin A**, vitamin B.sub.1, vitamin B.sub.2, **vitamin B.sub.3**, vitamin B.sub.4, vitamin B.sub.5, vitamin B.sub.6, vitamin B.sub.12, **vitamin C**, **vitamin D**, **vitamin D** .sub.2, **vitamin D**.sub.3, **vitamin E** , vitamin F, vitamin K.sub.1 and combinations and derivatives thereof. Preferred vitamins include vitamins C and E, as well as derivatives and combinations thereof. In a particularly preferred embodiment, the invention comprises both **vitamin C** and **vitamin E**. The vitamins may be present in a concentration from about 0.5-50 percent by weight, preferably 0.5-10 percent by weight, based. . .

DETD

Vitamin C Suspension

Phase	Ingredients	% Wt
A	Eutanol G	87.40
A	AQU-D-3360-H	7.60
B	Micronized Ascorbic Acid	5.00
	Total	100.00
Viscosity (cps)	--	83,000

DETD

Vitamin C and E Suspension

Phase	Ingredients	A Wt. %	B Wt. %
A	Finsolv TN	64.50	41.00
A	Tocopherol	1.00	1.00
A	Wickenol 151	--	10.00
A	Cyclomethicone	21.50	35.00
B	AQU-D-3360-H	8.00	8.00
C	**Vitamin C**	5.00	5.00
	TOTAL	100.00	100.00
Viscosity (cps)	--	99,000	92,000

DETD . . . together with a propeller mixer. AQU-D-3360-H was added to the other Phase A ingredients while stirring with a propeller mixture. **Vitamin C** was added to the resulting mixture while stirring with a propeller mixer.

DETD . . . water absorption properties, the bioavailability of the vitamin or vitamins is enhanced upon application of the vitamin suspension to the **skin**.

CLM What is claimed is:

1. A composition having enhanced **skin** protection against ultraviolet rays comprising at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two. . .

12. A method for enhancing the **skin** protection properties of sunscreen compositions against ultraviolet rays comprising applying to the **skin** a composition comprising at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

23. An anhydrous composition for delivering one or more vitamins to the **skin** comprising at least one vitamin composition and at least one polysaccharide alkylether comprising at least two different moieties and at. . .

35. A method for delivering one or more vitamins to the **skin** comprising applying to the **skin** a composition comprising at least one vitamin composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

47. A method according to claim 35, wherein the vitamin is **vitamin C**.

L3 ANSWER 11 OF 17 USPATFULL

TI **Skin** protection, fragrance enhancing and vitamin delivery composition

PI US 5728371 19980317 <--

AB The present invention provides a composition for extending the longevity of the fragrance on the **skin** which comprises at least one fragrance composition and at least one polysaccharide alkylether which includes at least two different moieties. . . saturated C.sub.1 -C.sub.24 alkyl chain. The present invention also provides a method for extending the longevity of fragrance on the **skin** which involves applying to the **skin** a composition including at least one fragrance composition and at least one polysaccharide alkylether having at least two different moieties. . .

SUMM This invention is directed to a composition having enhanced **skin** protection properties against ultraviolet rays, and a method of enhancing the **skin** protection properties of sunscreen compositions. This invention is also directed to a composition for extending the longevity of fragrance on the **skin**, and a method

for extending the longevity of fragrance on the **skin**. This invention is also directed to an anhydrous composition for delivering one or more vitamins to the **skin**, and a method for delivering one or more vitamins to the **skin**.

SUMM The damaging effect of the sun's ultraviolet radiation on the **skin** is well known. Accordingly, many **skin** protection products have been developed which contain various materials intended to block or absorb ultraviolet rays, thereby preventing or lessening damage to the **skin**. Typically, such products are oil-in-water or water-in-oil emulsions and anhydrous systems containing sunscreens or ultraviolet radiation filters, and the compositions are topically applied to the **skin**. The relative **skin** protection afforded by such compositions is typically measured by means of determining a "sun protection factor" or SPF for the. . .

SUMM . . . that there is a relationship between the rheological properties of such emulsions and the SPF of the composition. Since the **skin** is not a flat surface, but rather has a topography made up of irregular peaks and valleys, it is believed. . . emulsion are relatively minimal. Oils typically exhibit Newtonian viscosity (i.e., non-shear sensitive), which is not very effective in covering the **skin**. Accordingly, the rheological properties of traditional **skin** protection emulsions based upon water-soluble rheological additives are greatly reduced as water evaporation from the **skin** takes place. The remaining oil phase provides a less effective covering of the **skin**, with concurrent reduction in protection from ultraviolet rays. Thus, it would be advantageous to prepare a **skin** protection composition which is an emulsion having enhanced SPF and which avoids the above-described problems.

SUMM . . . alkyl chain have enhanced SPF properties. Accordingly, it is one object of this invention to provide a composition having enhanced **skin** protection properties from ultraviolet radiation. It is another object of this invention to provide a method of enhancing the **skin** protection properties from ultraviolet radiation using such a composition. It is a feature of the composition and method of this. . . chain. This invention is advantageous in that the use of the oil soluble polymer enhances the SPF capability of the **skin** protection composition. While not wishing to be bound by any theory, it is believed that incorporation of this oil soluble polymer into the oil phase increases viscosity and provides film forming properties that enhance SPF activity on **skin**.

SUMM The use of various fragrance-bearing compositions on the **skin** has been known for centuries. However, improving the duration of fragrances on the **skin** has always posed a challenge. In the past, attempts have been made to introduce various materials into fragrance compositions to. . . compositions, and changes in the character of the fragrance have all impaired improvement of the longevity of fragrance on the **skin**. Accordingly, it would be advantageous to prepare a composition capable of imparting fragrance to the **skin** and capable of extending the longevity of the fragrance on the **skin**.

SUMM . . . group substituted with a saturated C.sub.1 -C.sub.24 alkyl chain are capable of extending the longevity of the fragrance to the **skin**. Accordingly, it is another object of this invention to provide a composition for extending the longevity of fragrance on the **skin**. It is another object of this invention to provide a method of extending the longevity of fragrance on the **skin** using such a composition. It is a feature of the composition and method of this invention that the composition contains. . . advantageous in that the use of the polysaccharide alkylether oil soluble polymer extends the longevity of fragrance imparted to the **skin** by the fragrance composition.

SUMM The delivery of various vitamins to the **skin** is known to be

beneficial. For example, **vitamin C** (i.e., ascorbic acid) and **vitamin E** (i.e., tocopherol) are well known **skin** care ingredients with proven beneficial free radical scavenger and antioxidant properties. However, to be effective these and other vitamins must be delivered to the **skin** in the active form. For example, **vitamin E** is oil soluble, but **vitamin C** is water soluble and is very unstable in water, degrading very rapidly. Thus, effective delivery of **vitamin C** to the **skin** in an aqueous system is very difficult to achieve. Accordingly, the use of anhydrous or essentially anhydrous systems to deliver effective amounts of **vitamin C** to the **skin** have been attempted. Such systems have employed materials such as petrolatum, waxes, fatty alcohols, fatty acids, polyethylenes and low HLB. . . . properties. Thus, it would be advantageous to prepare an anhydrous composition capable of delivering one or more vitamins to the **skin** which has good stability and cosmetic application properties.

SUMM . . . saturated C.sub.1 -C.sub.24 alkyl chain are capable of delivering the vitamin, including combinations of vitamins C and E, to the **skin**. Accordingly, it is yet another object of this invention to provide an anhydrous composition for delivering one or more vitamins to the **skin**. It is another object of this invention to provide a method for delivering one or more vitamins to the **skin** using such a composition. It is a feature of the composition and method of this invention that the composition contains. . . use of the polysaccharide alkylether oil soluble polymer provides a stable, cosmetically acceptable vehicle for delivery of vitamins to the **skin**.

SUMM A composition for having enhanced **skin** protection from ultraviolet rays comprises at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two. . . sunscreen composition comprises one or more materials capable of filtering, blocking or absorbing ultraviolet rays. A method for enhancing the **skin** protection properties of sunscreen formulations against ultraviolet rays comprises applying to the **skin** a composition comprising at least one sunscreen composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

SUMM A composition for extending the longevity of fragrance on the **skin** comprises at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties and at. . . composition comprises one or more materials having a fragrant odor. A method for extending the longevity of fragrance on the **skin** comprises applying to the **skin** a composition comprising at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

SUMM An anhydrous composition for delivering one or more vitamins to the **skin** comprises at least one vitamin and at least one polysaccharide alkylether comprising at least two different moieties and at least one hydroxyl group substituted with a saturated C.sub.1 -C.sub.24 alkyl chain. The composition for delivering vitamins to the **skin** comprises at least one vitamin. For example, the composition may comprise **vitamin C, vitamin E**, or a combination thereof. A method for delivering one or more vitamins to the **skin** comprises applying to the **skin** a composition comprising at least one vitamin and at least one polysaccharide alkylether comprising at least two different moieties and. . .

SUMM All of these compositions are most preferably topically applied to the **skin**. The polysaccharide alkyl ether has a weight average molecular weight in the range of 1 to 1,000,000, preferably 1 to. . .

DETD The **skin**-protection enhancing composition of this invention comprises at least one sunscreen composition and at least one oil soluble polymer which is. . .

DETD . . . MCX, manufactured by Givaudan, and UVINUL M-40, a benzophenone-3 product manufactured by BASF. The sunscreen composition is employed in the **skin**-protection enhancing composition in a concentration range approved by the United States Food and Drug Administration (FDA). A sunscreen such as. . . OMC is employed in a concentration range of 2 to 7.5 weight percent, based on the total weight of the **skin** protection formulation. Benzophenone-3 is employed in a concentration range of 2 to 6, preferably 2 to 3 weight percent, based on the total weight of the **skin** protection formulation.

DETD . . . Inc. under the AQUALON trade name, most preferably AQUALON AQU-D-3360-L and AQU-3360-H. The polysaccharide alkylether is employed in the enhanced **skin** protection composition in a concentration range of about 0.5 to 10 weight percent, based upon the total weight of the **skin** protection formulation. The invention may be employed in an anhydrous sun protection formulation as well as in oil-in-water or water-in-oil. . .

DETD The following examples illustrate various preferred embodiments of the enhanced **skin** protection composition of this invention. It will be understood that the following examples are illustrative and are not meant to. . .

DETD . . . being bound by any one theory, it is expected that use of the polysaccharide alkylether oil soluble polymer in the **skin** protection composition of this invention enables the oil-soluble ultraviolet filter or sunscreen material contained in the composition to be distributed more uniformly on the **skin** topography. It is also expected that the rheological properties are improved and made more flexible with respect to oil phases. . . composition. It is also expected that use of the polysaccharide alkylether prolongs the activity of the sunscreen composition on the **skin**, and reduces the penetration of oil-soluble sunscreen composition into the **skin** , thereby lowering the potential of **skin** irritation due to such penetration. It is also expected that use of the polysaccharide alkylether will enable the level or concentration of the sunscreen or ultraviolet radiation filter material to be reduced in the **skin** protection composition, thereby reducing the cost and possible harmful side effects of such materials. It is also expected that use of the polysaccharide alkylether will impart improved water-resistant properties to the **skin**-protection composition, thereby enhancing its use at the beach, pools, while swimming and the like.

DETD . . . polysaccharide alkylether employed in the fragrance extending composition of this invention is as described above with respect to the enhanced **skin** protection composition embodiment of this invention. The absence of any chemical odor in the oil soluble and lipophilic polymer makes. . .

DETD . . . fragrance duration. Formula D prepared in accordance with the invention was found to exhibit significantly longer fragrance duration on the **skin** as compared with control formula E.

DETD . . . Preliminary evaluation tests confirmed that formulation B prepared in accordance with the invention exhibited significantly longer fragrance duration on the **skin**.

DETD . . . alkylether employed in the vitamin delivery composition embodiment of this invention is as described above with respect to the enhanced **skin** protection composition and fragrance-enhancing embodiments of this invention. The oil soluble polymer may be present in the vitamin-delivery composition embodiment. . .

DETD Vitamins which may be employed in this embodiment of the invention include, but not limited to, **vitamin A**, pro **vitamin A**, vitamin B.sub.1, vitamin B.sub.2,

vitamin B.sub.3, vitamin B.sub.4, vitamin B.sub.5, vitamin B.sub.6, vitamin B.sub.12, **vitamin C**, **vitamin D**, **vitamin D** .sub.2, **vitamin D**.sub.3, **vitamin E**, vitamin F, vitamin K.sub.1 and combinations and derivatives thereof. Preferred vitamins include vitamins C and E, as well as derivatives and combinations thereof. In a particularly preferred embodiment, the invention comprises both **vitamin C** and **vitamin E**. The vitamins may be present in a concentration from about 0.5-50 percent by weight, preferably 0.5-10 percent by weight, based. . .

DETD

Vitamin C Suspension

Phase	Ingredients	% Wt
A	Eutanol G	87.40
A	AQU-D-3360-H	7.60
B	Micronized Ascorbic Acid	5.00
	Total	100.00
Viscosity (cps)	--	83,000

DETD

Vitamin C and E Suspension

Phase	Ingredients	A Wt. %	B Wt. %
A	Finsolv TN	64.50	41.00
A	Tocopherol	1.00	1.00
A	Wickenol 151	--	10.00
A	Cyclomethicone	21.50	35.00
B	AQU-D-3360-H	8.00	8.00
C	**Vitamin C**	5.00	5.00
	TOTAL	100.00	100.00
Viscosity (cps)	--	99,000	92,000

DETD . . . together with a propeller mixer. AQU-D-3360-H was added to the other Phase A ingredients while stirring with a propeller mixture. **Vitamin C** was added to the resulting mixture while stirring with a propeller mixer.

DETD . . . water absorption properties, the bioavailability of the vitamin or vitamins is enhanced upon application of the vitamin suspension to the **skin**.

CLM What is claimed is:

1. A composition for extending the longevity of fragrance on the **skin** comprising at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties and at. . .

12. A method for extending the longevity of fragrance on the **skin** comprising applying to the **skin** a composition comprising at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties. . .

L3 ANSWER 12 OF 17 USPATFULL

PI US 5653970 19970805 <--

AB The invention relates to personal product compositions containing heteroatom containing alkyl aldonamide compounds and **skin** conditioning agent. Unexpectedly, applicants have found that when these

heteroatom containing alkyl aldonamides are used, benefits such as enhanced stability. . .

SUMM . . . For this reason, a special importance is attached in the cosmetic area to personal products particularly, bath preparations, cleansing preparations, **skin** care preparations, shaving preparations and deodorant or antiperspirant preparations.

SUMM The primary function of a personal product composition is to cleanse the **skin** gently without irritation or excessive defatting or overdrying the **skin**. In addition, successful personal product compositions should not leave the **skin** tight or taut after frequent routine use. After accomplishing the cleansing action, the personal product composition should leave the **skin** feeling soft, smooth, silky and moisturized while simultaneously providing a rich copious foam or lather. This has become a difficult. . . in making a totally satisfactory product. For one thing, it is known that certain mild surfactant systems when formulated for **skin** cleansing, often exhibit poor foam or low lather performance. On the other side, the use of high sudsing surfactants with lather boosters can yield acceptable lather volume, unfortunately however, such surfactant systems are usually harsh to the **skin**. It will be appreciated that these two factors make the formulation process, a delicate balancing act.

SUMM . . . a personal product composition of the invention, surprisingly provides improved foam, viscosity, clarity and conditioning characteristics while simultaneously making the **skin** feeling soft, smooth, silky and moisturized. These findings are quite unexpected and have not been recognized or appreciated in the. . .

SUMM . . . roll-on, stick, tablet, powdered and bar form. Included among the personal product compositions are bubble bathes, shower gels, body shampoos, **skin** cleansers or lotions, liquid soaps, toilet bars, syndet bars, sunscreens, shaving creams, deodorants or antiperspirants and the like.

SUMM . . . good shelf life and should not become turbid or produce sedimentation upon standing. Ideal personal product compositions should cleanse the **skin** gently and should not overdry the **skin**. Surprising the personal product compositions of the present invention that comprise a heteroatom containing alkyl aldonamide compound produce clear, stable,. . .

SUMM . . . alkyl carboxybetaines) and mixtures thereof, could result in a clear thickened personal product composition that foams copiously and leaves the **skin** feeling soft, smooth, silky and moisturized.

SUMM U.S. Pat. No. 4,973,473 to Schneider, et al. teaches **skin** treatment compositions in which the primary moisturizing agent may be a gluconamide compound. Methyloxypropyl gluconamide is the only example of. . .

SUMM These compounds are said to be useful as emollients which are substantive to **skin** or hair and are further taught in U.S. Pat. Nos. 3,990,991 to Gerstein, 4,534,964 to Herstein et al. and 4,529,588. . .

SUMM . . . the heteroatom containing alkyl aldonamide compounds of the invention in compositions with for example, certain essential ingredients such as cosurfactants, **skin** conditioning agents, **skin** feel mildness agents, suspending agents, hydroxy acids, auxiliary thickening agents and auxiliary agents (see claim 4). There is also clearly. . .

SUMM . . . object of the present invention to provide mild personal product compositions that efficiently remove surface grease and dirt from the **skin**.

SUMM It is still another object of the present invention to provide new and improved personal product compositions that leave the **skin** feeling fragrant, soft, smooth, silky and moisturized.

SUMM It is a final object of the present invention to provide an improved

method of cleansing and conditioning the **skin**. These and other objects will become readily apparent from the detailed description which follows.

DETD . . . sought. Such ingredients are well known to those skilled in the art and include, but are not limited to cosurfactants, **skin** conditioning agents, **skin** feel mildness agents, suspending agents, hydroxy acids, auxiliary thickening agents, water and other optional ingredients (auxilary agents).

DETD Cationic surfactants have been taught in the art as conditioning agents for the **skin**. Suitable cationic surfactants are broadly exemplified as those of the general formula:

DETD **Skin** Conditioning Agents (Moisturizers/Emollients)

DETD Various materials have been taught in the art for use as agents that condition the **skin**. In general, such conditioning agents are designed to make the **skin** feel soft, smooth, silky and moisturized.

DETD . . . term emollient, and is meant to describe a material which imparts a soft, smooth, silky and moisturized feeling to the **skin** surface.

DETD One way of moisturizing is to reduce the rate of water loss from the stratum corneum (**skin** surface) by depositing an occlusive material (emollient or emulsifier) on the **skin** surface which prevents water evaporation. Mother technique is to add hygroscopic nonocclusive substances (humectants), which will retain water to the stratum corneum, making water available to the **skin** surface thereby producing the desired cosmetic effect. Nonocclusive moisturizers also function by improving the lubricity of the **skin**. Both occlusive and nonocclusive moisterizers as well as mixtures thereof are operative in the present invention. Examples of occulusive moisturizers.. . . include polyols, fatty acids, certain alkanolamides, pyrrolidone carboxylic acid and their derivatives. It is to be understood that any such **skin** conditioning agent or mixtures thereof can be employed herein, depending on the formulations desires.

DETD . . . potassium, ammonium and alkanol ammonium salts of pyrrolidone carboxylic acid, ethyl pyrrolidone carboxylic acid and the like. Typical levels of **skin** conditioning agent are from about 1% to about 40%, preferably from about 2% to about 30%, even more preferably from. . .

DETD **Skin** Feel Mildness Agents

DETD The **skin** feel mildness agents useful in the present invention include, but are not limited to the cationic, anionic, amphoteric and nonionic polymers used in the cosmetic field. Reduced **skin** irritation benefits of cationic and nonionic polymers are described in Polymer JR for **Skin** Care Bulletin, by Union Carbide in (1977). The cationic polymers also provide a desirable soft, smooth and silky feeling to the **skin**. While wishing not to be bound to theory, it is believed that cationic polymers chemically interact with anionic surfactants to form complexes which may enhance overall mildness to **skin** characteristics. Also, there is a reason to believe that positively charged cationic polymers can bind with negatively charged sites on the **skin** to provide a softer **skin** feel after use. The cationic polymers are most preferred because they provide the best **skin** feel benefits.

DETD . . . in the present invention is discribed in U.S. Patent No. 4,438,095 which is incorporated herein by reference. Typical levels of **skin** conditioning agent are from about 0% to about 5%, preferably from about 0% to about 4%, even more preferably from. . .

DETD Hydroxy acids have been taught in the art for use as agents that exfoliate dead **skin** cells leaving **skin** smoother and tighter with a more youthful appearance. In addition, hydroxy acid treatments help reduce liver and sun spots as. . .

DETD . . . and vegetables or by fermentation of corn or sugar substrates) and the like are useful as well. Typical levels of **skin** conditioning agent are from about 0% to about 10%, preferably from about 0% to about 8%, even more preferably from. . .

DETD Various materials have been taught in the art as agents that are useful in suspending certain performance ingredients such as **skin** feel mildness agents, silicone fluids, and the like, uniformly, thereby assisting in the delivery of the desirable performance attributes associated. . .

DETD Examples of sunscreens or UV absorbers useful in the present invention which protect the **skin** and certain sensitive ingredients from harmful sunlight include dipropyleneglycol salicylate, octyl salicylate, 2-ethylhexyl p-dimethylaminobenzoate (octyldimethyl-PABA), polyoxyethylene p-dimethylaminobenzoate (PEG-25 PABA), Tri-PABA-panthenol,. . .

DETD Examples of vitamins useful in the present invention which provide the hair with valuble nutrition include **vitamin A** (as retinyl acetate, propionate or palmitate) provitamin A (based on carrot extract, as .beta.-carotene), vitamin B.sub.1 (as thiamine mononitrate), vitamin B.sub.2 (as riboflavin), **vitamin B**. **sub.3** (as niacinamide), vitamin B.sub.5 (as pantothenic acid), provitamin B.sub.5 (as panthenol), vitamin B.sub.6 (as pyridoxine hydrochloride, dioctenoate, dilaurate, dipalmitate or tripalmitate), vitamin B.sub.12 (as cyanocobalamin), vitamin B.sub.15 (as pangamic acid), **vitamin C** (as ascorbic acid), **vitamin D**.sub.2 (as ergocalciferol), **vitamin D**.sub.3 (as cholecalciferol), **vitamin E** (as dl-.alpha.-tocopherol acetate, linoleate or nicotinate,), vitamin F (as glyceryl linoleate and glyceryl linolenate), vitamin K.sub.1 (as phytonadione), vitamin K.sub.3. . . bioflavoniod and mixtures thereof. Preferred vitamins are provitamin A, vitamin B.sub.1, vitamin B.sub.2, provitamin B.sub.5, vitamin B.sub.6, vitamin B.sub.12 and **vitamin E**. Typical levels of vitamin are from about 0% to about 7% by weight of the composition.

DETD Examples of amino acids useful in the present invention which provide the **skin** with valuble nutrition include alanine, .beta.-alanine, N-methylalanine, N-phenylalanine, .alpha.-aminoisobutyric acid, .alpha.-aminobutyric acid, .alpha.-aminocaproic acid, .epsilon.-aminocaproic acid, glycine, N-ethylglycine, N-propylglycine, N-butylglycine,. . .

DETD Examples of proteins useful in the present invention which provide the **skin** with valuble nutrition include hydrolyzed casein, hydrolyzed collagen (hydrolyzed animal protein), myristoyl hydrolyzed animal protein, hydrolyzed corn protein, hydrolyzed glycosaminoglycans,. . .

DETD . . . present invention which prevent the oxidation of certain ingredients by air and prevent the development of unpleasant, rancid odors include **vitamin E** (tocopherol), lecithin, wheat germ oil, sodium sulfite, sodium bisulfite, uric acid, propyl gallate, butylated hydroxyanisole (BHA), toluhydroquinone (THQ) sold as. . .

DETD . . . adjusted to a pH of about less than 7 to provide a composition that is non-irritating and non-damaging to the **skin** of the consumer. The amount of buffering agent used will be that which is sufficient to provide the desired buffered. . .

DETD Examples of heeling agents which function to stimulate the growth of healthy **skin** tissue include allantion, aluminum dihydroxy allantoinate, urea, uric acid, aloe vera gel, methyl manuronate, uronic acids, sucrose octaacetate, menthol, hydrolyzed. . .

DETD (c) from about 1% to about 40% by weight of the composition is a **skin** conditioning agent;

DETD (d) from about 0% to about 5% by weight of the composition is a

skin feel mildness agent;

DETD (c) from about 2% to about 30% by weight of the composition is a **skin** conditioning agent;

DETD (d) from about 0% to about 4% by weight of the composition is a **skin** feel mildness agent;

DETD (c) from about 3% to about 25% by weight of the composition is a **skin** conditioning agent;

DETD (d) from about 0% to about 3% by weight of the composition is a **skin** feel mildness agent;

DETD (c) from about 3.1% to about 25% by weight of the composition is a **skin** conditioning agent;

DETD (d) from about 0% to about 3% by weight of the composition is a **skin** feel mildness agent;

DETD . . . in a variety of types and forms. A classification according to product type would consist of bath products, cleansing products, **skin** care products, shaving products and deodorant/antiperspirant products.

DETD Examples of **skin** care products include, but are not limited to hand/body/facial moisturizers, hand/body/facial creams, massage creams, hand/body/facial lotions, sunscreen products, tanning products,. . .

DETD . . . the heteroatom containing alkyl aldonamide compounds of the invention are useful as foam stabilizing agents, thickening agents, solubilizing agents and **skin** conditioning agents. In addition, it has been found that the heteroatom containing alkyl aldonamide compounds of the invention are also. . .

DETD The present compositions are used in a conventional manner for cleaning and/or conditioning the **skin**. From about 0.1 g to about 15 g of a composition is applied to the **skin** that may or may not be thoroughly wetted with water. The composition is worked unto the **skin** from about 30 seconds to about five minutes and then rinsed off or left on.

DETD The zein solubilization assay was developed to determine the biological effects of surfactants on the **skin**. The protein is normally in soluble in water, but can be brought into solution by interaction with surfactants. The extent. . . Z. Poly., 233, 848, 1969). The greater the zein solubilization, the greater the irritation potential of that surfactant on the **skin**.

DETD In order to demonstrate the improved ability of heteroatom containing alkyl aldonamide to provide mildness benefits to the **skin**, mixtures of C.sub.8 /C.sub.10 oxypropyl D-gluconamide (C.sub.8 /C.sub.10 OPG) and sodium lauryl sulfate (SLS) by weight were tested and compared. . .

DETD . . . so the heteratom containing alkyl aldonamide compounds not anly enhance viscosity and stabilize foam, but are also mild to the **skin**.

DETD High Foaming **Skin** Conditioning Bubble Bath

DETD High Foaming **Skin** Conditioning Bubble Bath Concentrate with Protein

DETD . . . 3.0 --

32. Hena Extract -- -- -- -- -- 0.5 --

33. Tocopherol -- 0.5 -- -- -- -- 1.0
Acetate
(**Vitamin E**)

34. Panthenol 0.5 -- -- -- -- -- --
(Vitamin B5)

35. Ethylene Glycol -- -- 0.6 -- -- -- --
Monostearate

36.. . .

DETD . . . -- 0.6 -- --

31. Panthenol

-- -- -- 2.0 -- -- --
(Vitamin B5)
32. Tocopheryl
-- -- -- 2.0 -- -- --
Acetate/Linoleate
(**Vitamin E**)
33. Butylated
0.01 0.01 -- -- -- 0.1 --
Hydroxytoluene
34. Carboxymethyl
-- -- -- 1.5 -- -- --
Cellulose
35. Hydroxyethyl
-- -- --. . .
DETD . . . 2.0 --
27. Kelp Extract
-- -- -- -- -- -- 2.0
28. Tocopheryl Ace-
-- -- -- -- -- -- 0.5
tate (**Vitamin E**)
29. Sodium 5.0 5.2 -- -- 5.0 -- --
Isethionate
30. Sodium Chloride
0.5 0.5 0.5 0.5 0.4 -- --
31. Titanium Dioxide
0.5. . .
DETD A Mild Moisturizing Syndet Bar Composition with **Vitamin E** and Bath Oil
DETD . . . -- --
Protein
54. TEA-Coco
-- -- -- -- -- -- 18.0
Hydrolyzed Animal
Protein
55. Tocopheryl Ace-
-- -- -- -- -- -- 0.3
tate (**Vitamin E**)
56. Sodium -- 0.2 -- -- 0.3 -- --
Dehydroacetate
57. Sodium Pyrroli-
-- -- -- -- -- 4.0 --
done Carboxylic Acid
58. Disodium. . .
DETD An Astringent Facial Cleansing Composition with Protein, **Vitamin E** and Aloe
DETD . . . 1.0 --
38. Isostearic Acid
-- -- -- -- -- 1.7 --
39. Tocopheryl Ace-
-- -- -- 0.2 -- 0.1 1.0
tate (**Vitamin E**)
40. Panthenol
-- -- -- -- -- -- 1.0
(Provitamin B5)
41. Retinyl Palmitate
-- -- 3.0 -- -- -- --
Polypeptide
42. Lecithin
--. . .
DETD A Moisturizing Lotion Composition with Antioxidants for Aging **Skin**
DETD A Moisturizing Cream Composition with Alpha Hydroxy Acids and

Vitamin E
DETD . . . -- --
(2%)
46. Carbomer 940
-- -- -- -- -- 10.0 5.0
(2%)
47. Tocopheryl Ace-
-- -- -- 0.1 0.2 -- 0.2
tate (**Vitamin E**)
48. Ascorbic Acid
-- -- -- -- 0.3 -- --
(**Vitamin C**)
49. Ascorbyl Palmitate
-- -- -- -- -- -- 0.2
50. Retinyl Palmitate
-- -- -- -- -- -- 0.3
(**Vitamin A**)
51. Bioflavoniod
-- -- -- -- -- -- 0.4
52. Ivy Extract
-- -- -- -- -- -- 0.9
53. Dimethicone
-- --. . .
DETD A Sunscreen Cream Composition with **Vitamin E**
DETD A Sunscreen Cream Composition with **Vitamin E**
DETD . . . --
35. Animal -- -- -- 0.5 0.1 -- --
Collagen
(Soluble)
36. Tocopheryl -- -- -- -- 0.1 -- --
Acetate
(**Vitamin E**)
37. Acetamide -- -- -- 1.5 -- -- --
MEA
38. Lactamide -- -- -- 1.5 -- -- --
MEA
39. Allantoin --. . .
DETD A Nonalcoholic Aftershave Lotion Composition with **Vitamin E**
DETD An Aftershave **Skin** Conditioning Composition
CLM What is claimed is:
. . . ammonium chloride, sodium sulfate, potassium sulfate, magnesium sulfate, sodium isethionate, sodium thiosulfate and mixtures thereof; (d) about 1% to 40% **skin** conditioning agent; and (e) water.

L3 ANSWER 13 OF 17 USPATFULL
PI US 5641480 19970624 <--
SUMM . . . to cleanse the hair and scalp from soil without stinging or irritating the eyes and scalp. Hair soil includes natural **skin** secretions (such as sebum), **skin** debris, dirt from the environment and residue from hair-grooming products applied by the consumer. After accomplishing the cleansing action, the. . .
SUMM U.S. Pat. No. 4,973,473 to Schneider, et al. teaches **skin** treatment compositions in which the primary moisturizing agent may be a gluconamide compound. Methyloxypropyl gluconamide is the only example of. . .
SUMM These compounds are said to be useful as emollients which are substantive to **skin** or hair and are further taught in U.S. Pat. Nos. 3,990,991 to Gerstein, 4,534,964 to Herstein et al. and 4,529,588. . .
SUMM . . . still another object of the present invention to provide mild

hair care compositions that efficiently remove surface grease, dirt and **skin** debris from the hair shaft and scalp.

SUMM Examples of vitamins useful in the present invention which provide the hair with valuable nutrition include **vitamin A** (as retinyl acetate, propionate or palmitate) provitamin A (based on earrot extract, as .beta.-carotene), vitamin B.sub.1 (as thiamine mononitrate), vitamin B.sub.2 (as ribofiavin), **vitamin B.sub.3** (as niacinamide, vitamin B.sub.5 (as pantothenic acid), provitamin B.sub.5 (as panthenol), vitamin B.sub.6 (as pyridoxine hydrochloride, dioctenoate, dilaurate, dipalmitate or tripalmitate), vitamin B.sub.12 (as cyanocobalamin), vitamin B.sub.15 (as pangamic acid), **vitamin C** (as aseorbie add), **vitamin D**.sub.2 (as ergocalciferol), **vitamin D**.sub.3 (as cholecalciferol), **vitamin E** (as dl-.alpha.-tocopherol acetate, linoleate or nicotinate,), vitamin F (as glyceryl linoleate and glyceryl linolenate), vitamin K.sub.1 (as phytonadione), vitamin K.sub.3. . . . sterol and mixtures thereof. Preferred vitamins are provitamin A, vitamin B.sub.1, vitamin B.sub.2, provitamin B.sub.5, vitamin B.sub.6, vitamin B.sub.12 and **vitamin E**. Typical levels of vitamin are from about 0% to about 7% by weight of the composition.

SUMM . . . present invention which prevent the oxidation of certain ingredients by air and prevent the development of unpleasant, rancid odors include **vitamin E** (tocopherol), lecithin, wheat germ oil, sodium sulfite, sodium bisulfite, uric acid, propyl gallate, butylated hydroxyanisole (BHA), toluhydroquinone (THQ) sold as. . .

SUMM . . . to a pH of about less than 7 to provide a composition that is non-irritating and non-damaging to the hair, **skin** and eyes of the consumer. The mount of buffering agent used will be that which is sufficient to provide the. . .

DETD The zein solubilization assay was developed to determine the biological effects of surfactants on the **skin**. The protein is normally in soluble in water, but can be brought into solution by interaction with surfactants. The extent. . . Z. Poly., 233, 848, 1969). The greater the zein solubilization, the greater the irritation potential of that surfactant on the **skin**.

DETD In order to demonstrate the improved ability of heteroatom containing alkyl aldonamtde to provide mildness benefits to the **skin** (scalp), mixtures of C.sub.8 /C.sub.10 oxypropyl D-gluconamide (C.sub.8 /C.sub.10 OPG) and sodium lauryl sulfate (SLS) by weight were tested and. . .

DETD . . . Protein

-- -- -- -- -- -- 1.0

33. Wheat Germ Oil -- -- -- -- -- 0.1

--

34. Tocopherol Acetate (**Vitamin E**)

-- -- -- -- -- 0.1

--

35. Panthenol (Provitamin B5)

-- -- -- -- -- 0.5

--

36. Balsam -- --. . .

L3 ANSWER 14 OF 17 USPATFULL

PI US 5639471 19970617 <--

SUMM The NCI also suggests that diets rich in foods containing **Vitamin C** and **Vitamin A** from fruits and vegetables may also reduce the risk of cancer. Epidemiologic studies have shown that diets high in **Vitamin A** and **Vitamin C** are associated with lower risks of some kinds of cancers. Therefore, the NCI recommends consumption of a variety

of fruits and vegetables, including fruit and vegetable juices that are high in **Vitamin A** and **Vitamin C**.
Especially beneficial are cruciferous vegetables which are good sources of fiber, as well as vitamins and minerals.

DRWD . . . major sources of dietary fat rather than by eliminating whole categories of foods. For example, by substituting fish, poultry without **skin**, lean meats and low- or non-fat dairy products for high-fat foods, a patient may lower total fat and SFA intake. . .

DRWD TABLE I

Nutrient	Daily Desired Level of Fortification Breakfast Meal (35%)	Lunch Meal (30%)	Dinner Meal (35%)
VITAMIN A, (IU)	1750	1500	1750
VITAMIN D, (IU)	140	120	140
VITAMIN E, (IU)	10.5	9	10.5
VITAMIN C, (mg)	35	30	35
VITAMIN B.sub.1, (mg)	0.53	0.45	0.53
VITAMIN B.sub.2, (mg)	0.6	0.51	0.6
VITAMIN B.sub.3, (mg)	7	6	7
VITAMIN B.sub.6, (mg)	0.7	0.6	0.7
VITAMIN B.sub.12, (mg)	2.1	1.8	2.1
BIOTIN, (mcg)	105	90	105
FOLIC ACID, (mg)			

. . .

DRWD TABLE III

U.S. Recommended Dietary AHowance (USRDA) NUTRIENT	USRDA
VITAMIN A	5000 IU
VITAMIN B.sub.1	1.5 mg
VITAMIN B.sub.2	1.7 mg
VITAMIN B.sub.3	20 mg NE.sup.1
VITAMIN B.sub.6	2 mg
VITAMIN B.sub.12	6 mcg
VITAMIN C	60 mg
VITAMIN D	400 IU
VITAMIN E	30 IU
VITAMIN K	NONE ESTABLISHED
BIOTIN	300 mcg
CALCUIM	1000 mg
COPPER	2 mg
FOLIC ACID	400 mcg
IODINE	150 mcg
IRON	18 mg
MAGNESIUM	400 mg
MANGANESE. . .	

DRWD TABLE IV

DFEA Compositions

NUTRIENT	CONCENTRATION RANGE
VITAMIN A	1125-9900 IU
VITAMIN B.sub.1	0.41-2.07 mg
VITAMIN B.sub.2	0.23-2.24 mg
VITAMIN B.sub.3	6.3-25.3 mg NE
VITAMIN B.sub.6	0.54-2.75 mg
VITAMIN B.sub.12	1.08-8.58 mcg
VITAMIN C	31.5-330 mg
VITAMIN D	36-682 IU
VITAMIN E	9.45-49.5 IU
VITAMIN K	0-110 mcg
BIOTIN	94.5-412.5 mcg
CALCUIM	108-1333.2 mg
COPPER	0.95-3.63 mg
FOLIC ACID	126-660 mcg
IODINE	47.25-187.75 mcg
IRON	5.67-20.79 mg
MAGNESIUM	72-339.9 mg
MANGANESE. . .	

DETD TABLE VIII

Vitamin and Mineral Mixture (Frozen Foods)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A Palmitate	9000 IU	**Vitamin A**
VITAMIN B.sub.1	1.88 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg NE	Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D	620 IU	**Vitamin D**.sub.3
VITAMIN E Acetate	45 IU	**Vitamin E**
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCUIM	1212 mg	Calcium Citrate/Dicalcium Phosphate
COPPER	3.3 mg	Copper Gluconate
FOLIC ACID	600. . .	

DETD . . . humidity, e.g. in a range of about 35 to 75% RH, to produce a homogenous vitamin mix: 36 mg of **Vitamin A** Palmitate (250 micron spray dried); 300 mg of Ascorbic Acid; 6.2 mg of **Vitamin D**.sub.3 -100 S.D.; 90 mg of **Vitamin E** acetate 50% (CWS/F); 10 mg of Vitamin K.sub.1, 1% (spray dried); 1.88 mg of Thiamine Mononitrate; 2.04 mg of Riboflavin;. . .

DETD TABLE IX

Vitamin and Mineral Mixture (Cereals)

NUTRIENT	CONCENTRATION	FORM
VITAMIN A	2500 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	0.59 mg	Thiamine Mononitrate
VITAMIN B.sub.2	0.32 mg	Riboflavin
VITAMIN B.sub.3	7.7 mg NE	Niacinamide
VITAMIN B.sub.6	0.84 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	2.4 mcg	Vitamin B.sub.12
VITAMIN C	140 mg	Ascorbic Acid/Sodium Ascorbate
VITAMIN D .sub.3	80 IU	**Vitamin D**
VITAMIN E	15.75 IU	**Vitamin E** Acetate
BIOTIN	141.75 mcg	Biotin
CALCUIM	123.6 mg	Calcium Carbonate
COPPER	1.16 mg	Copper Gluconate
FOLIC ACID	210 mcg	Folic Acid
IODINE	60.38 mcg	Potassium. . .

DETD TABLE X

Vitamin and Mineml Mixture (Soups and Other Retorted Meals)

NUTRIENT	CONCENTRANON	FORM
VITAMIN A	9000 IU	**Vitamin A** Palmitate
VITAMIN B.sub.1	2.63 mg	Thiamine Mononitrate
VITAMIN B.sub.2	2.04 mg	Riboflavin
VITAMIN B.sub.3	23 mg NE	Niacinamide
VITAMIN B.sub.6	2.5 mg	Pyridoxine Hydrochloride
VITAMIN B.sub.12	7.8 mcg	Vitamin B.sub.12
VITAMIN C	300 mg	Ascorbic Acid
VITAMIN D .sub.3	620 IU	**Vitamin D**
VITAMIN E	45 IU	**Vitamin E** Acetate
VITAMIN K	100 mcg	Vitamin K.sub.1
BIOTIN	375 mcg	Biotin
CALCUIM	1212 mg	Calcium Citrate/Dicalcium Phosphate
COPPER	3.3 mg	Copper Gluconate
FOLIC ACID	600. . .	

DETD TABLE XI

Garlic Roll

Nutrient	Fortification Level
VITAMIN A, (IU)	2250
VITAMIN D, (IU)	155
VITAMIN E, (IU)	11.25
VITAMIN C, (mg)	75
VITAMIN B.sub.1, (mg)	0.47
VITAMIN B.sub.2, (mg)	0.51
VITAMIN B.sub.3, (mg)	5.75
VITAMIN B.sub.6, (mg)	0.63
VITAMIN B.sub.12, (mg)	1.95
BIOTIN, (mcg)	93.75
FOLIC ACID, (mg)	150
PANTOTHENIC ACID, (mg)	3.13
VITAMIN K, (mcg)	25
CALCIUM, (mg). . .	

DETD TABLE XII

Raisin Bran Cereal

Nutrient	Fortification Level
VITAMIN A, (IU)	2500
VITAMIN D, (IU)	80
VITAMIN E, (IU)	15.75
VITAMIN C, (mg)	140
VITAMIN B.sub.1, (mg)	0.59
VITAMIN B.sub.2, (mg)	0.32
VITAMIN B.sub.3, (mg)	7.7
VITAMIN B.sub.6, (mg)	0.84
VITAMIN B.sub.12, (mg)	2.4
BIOTIN, (mcg)	141.75
FOLIC ACID, (mg)	210
PANTOTHENIC ACID, (mg)	4.5
CALCIUM, (mg)	123.6
COPPER, (mg)	1.16
IRON. . .	

DETD TABLE XIII

Apple Crisp

Nutrient	Fortification Level
VITAMIN A, (IU)	1620
VITAMIN D, (IU)	111.6
VITAMIN E, (IU)	8.1
VITAMIN C, (mg)	54
VITAMIN B.sub.1, (mg)	

	0.34
VITAMIN B.sub.2, (mg)	
	0.37
VITAMIN B.sub.3, (mg)	
	4.14
VITAMIN B.sub.6, (mg)	
	0.45
VITAMIN B.sub.12, (mg)	
	1.4
BIOTIN, (mcg)	67.5
FOLIC ACID, (mg)	108
PANTOTHENIC ACID, (mg)	
	2.25
VITAMIN K, (mcg)	18
CALCIUM, (mg). . .	

DETD TABLE XIV

Whipped Potatoes	
Nutrient	Fortification Level
VITAMIN A, (IU)	1080
VITAMIN D, (IU)	74.4
VITAMIN E, (IU)	5.4
VITAMIN C, (mg)	36
VITAMIN B.sub.1, (mg)	
	0.23
VITAMIN B.sub.2, (mg)	
	0.25
VITAMIN B.sub.3, (mg NE)	
	2.76
VITAMIN B.sub.6, (mg)	
	0.3
VITAMIN B.sub.12, (mcg)	
	0.94
BIOTIN, (mcg)	45
FOLIC ACID, (mcg)	72
PANTOTHENIC ACID, (mg)	
	1.5
VITAMIN K, (mcg)	12
CALCIUM,. . .	

DETD TABLE XV

Orange Juice Drink	
Nutrient	Fortification Level
VITAMIN A, (IU)	1800
VITAMIN D, (IU)	124
VITAMIN E, (IU)	9
VITAMIN C, (mg)	60
VITAMIN B.sub.1, (mg)	
	0.38
VITAMIN B.sub.2, (mg)	
	0.41
VITAMIN B.sub.3, (mg NE)	
	4.6
VITAMIN B.sub.6, (mg)	
	0.5
VITAMIN B.sub.12, (mcg)	
	1.56
BIOTIN, (mcg)	75

FOLIC ACID, (mcg)	120
PANTOTHENIC ACID, (mg)	2.5
VITAMIN K, (mcg)	20
CALCIUM,. . .	
DETD	TABLE XVI

Vegetable Soup

Nutrient	Fortification Level
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5
VITAMIN C, (mg)	90
VITAMIN B.sub.1, (mg)	0.79
VITAMIN B.sub.2, (mg)	0.61
VITAMIN B.sub.3, (mg NE)	6.9
VITAMIN B.sub.6, (mg)	0.75
VITAMIN B.sub.12, (mcg)	2.34
BIOTIN, (mcg)	112.1
FOLIC ACID, (mcg)	180
PANTOTHENIC ACID, (mg)	3.75
VITAMIN K, (mcg)	30
CALCIUM,. . .	
DETD	TABLE XVII

Fruit Sauce

Nutrient	Fortification Level
VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39
BIOTIN, (mcg)	18.75
FOLIC ACID, (mcg)	30
PANTOTHENIC ACID, (mg)	0.63
VITAMIN K, (mcg)	5
CALCIUM,. . .	
DETD	TABLE XVIII

Bagel

Nutrient	Fortification Level

VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	1.15
VITAMIN B.sub.6, (mg)	0.13
VITAMIN B.sub.12, (mcg)	0.39
BIOTIN, (mcg)	18.75
FOLIC ACID, (mcg)	30
PANTOTHENIC ACID, (mg)	0.63
CALCIUM, (mg)	60.6
COPPER, (mg). . .	

DETD TABLE XIX

Salisbury Steak

Nutrient	Fortification Level
VITAMIN A, (IU)	2700
VITAMIN D, (IU)	186
VITAMIN E, (IU)	13.5
VITAMIN C, (mg)	90
VITAMIN B.sub.1, (mg)	0.54
VITAMIN B.sub.2, (mg)	0.61
VITAMIN B.sub.3, (mg NE)	6.9
VITAMIN B.sub.6, (mg)	0.75
VITAMIN B.sub.12, (mcg)	2.34
BIOTIN, (mcg)	112.1
FOLIC ACID, (mcg)	180
PANTOTHENIC ACID, (mg)	3.75
VITAMIN K, (mcg)	30
CALCIUM,. . .	

DETD TABLE XX

Salisbury Steak Gravy

Nutrient	Fortification Level
VITAMIN A, (IU)	450
VITAMIN D, (IU)	31
VITAMIN E, (IU)	2.25
VITAMIN C, (mg)	15
VITAMIN B.sub.1, (mg)	0.09
VITAMIN B.sub.2, (mg)	0.1
VITAMIN B.sub.3, (mg NE)	

	1.15			
VITAMIN B.sub.6, (mg)				
	0.13			
VITAMIN B.sub.12, (mcg)				
	0.39			
BIOTIN, (mcg)	18.75			
FOLIC ACID, (mcg)	30			
PANTOTHENIC ACID, (mg)				
	0.63			
VITAMIN K, (mcg)	5			
CALCIUM,. . .				
DETD				. . . Fiber (g)
	7	7	7	6
Sugar (g)	18	33	35	23
Protein (g)	21	14	16	13

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)				
Vitamin A	35	35	35	35
Vitamin C	55	55	55	55
Calcium	40	40	40	40
Iron	35	35	35	35
Vitamm D	35	35	35	35
Vitamin E	35	35	35	35
Thiamine	35	35	35	35
Riboflavin	35	35	35	35
Niacin	35	35	35	35
Vitamin B.sub.6				
	35	35	35. . .	
DETD				. . . 11
Protein (g)	19	26	20	20

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)				
	SPLIT PEA			
		CHICKEN	TURKEY	PASTA
	SOUP	NOODLE	SOUP	
			SANDWICH	
				Meal
Vitamin A	30	30	30	30
Vitamin C	50	50	50	50
Calcium	35	35	35	35
Iron	30	30	30	30
Vitamm D	30	30	30	30
Vitamin E	30	30	30	30
Thiamine	30	30	30	30
Riboflavin	30	30	30	30
Niacin	30	30	30	30
Vitamin B.sub.6				
	30	30	30. . .	
DETD				. . . 24 31 27 33

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)				
	GRILLED			
		GRILLED		
			HERB	
	BBQ	MUSTARD		
			ROASTED	POT
	CHICKEN			
		CHICKEN		

			CHICKEN	MEATLOAF	
					ROAST
Vitamin A	35	35	35	35	35
Vitamin C	55	55	55	55	55
Calcium	40	40	40	40	40
Iron	35	35	35	35	35
Vitamin D	35	35	35	35	35
Vitamin E	35	35	35	35	35
Thiamine	35	35	35	35	35
Riboflavin	35	35	35	35	35
Niacin	35	35	35	35	35
Vitamin. . .	27	28	32	29	25

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)

	SALISBURY STEAK	SIRLOIN BEEF TIPS	TURKEY TRADITIONAL	TURKEY GLAZED	BEEF STEW
Vitamin A	35	35	35	35	35
Vitamin C	55	55	55	55	55
Calcium	40	40	40	40	40
Iron	35	35	35	35	35
Vitamin D	35	35	35	35	35
Vitamin E	35	35	35	35	35
Thiamine	35	35	35	35	35
Riboflavin	35	35	35	35	35
Niacin	35	35	35	35	35
Vitamin. . .					
DETD				. . .	Fiber (g)
	2	1	3	2	
Sugar (g)	2	1	9	11	
Protein (g)	6	5	11	10	

PERCENTAGE OF U.S. RECOMMENDED DIETARY ALLOWANCES (USRDA)

Vitamin A	4	4	4	4
Vitamin C	4	4	4	4
Calcium	4	4	4	4
Iron	4	4	4	4
Vitamin D	4	4	4	4
Vitamin E	4	4	4	4
Thiamine	4	4	4	4
Riboflavin	4	4	4	4
Niacin	4	4	4	4
Vitamin B6	4	4	4. . .	

DETD . . . life. The trial was also to monitor the safety of the Prepared Diet by monitoring nutritional intake in plasma vitamins (**Vitamin A** and **Vitamin D**) and mineral (iron), and trace minerals levels.

L3 ANSWER 15 OF 17 USPATFULL

PI US 5422115 19950606 <--

SUMM . . . or proposed for the treatment of several other conditions, such as for example alcoholism, various dementias, aggression, schizophrenia, unipolar depression, **skin** disorders (including contact dermatitis, atopic dermatitis, seborrhoeic dermatitis, psoriasis and acne), immunological disorders, asthma, multiple sclerosis, rheumatoid arthritis, Crohn's disease,. . .

SUMM . . . soluble) may have difficulty entering primarily lipid environments so presenting problems where such entry (e.g. penetration into cells, into the **skin** or across the blood-brain barrier) is desirable, whereas entry of lithium into such lipid environments will be facilitated for lithium. . .

SUMM . . . may advantageously comprise a dressing with impregnated therein a Li(C.sub.18-22 PUFA) salt. Such dressings may be used for application to **skin** lesions with or without occlusion.

SUMM . . . generally be in the form of gels, creams, ointments, sprays, soaps, lotions, shampoo, emulsions or douches, or other cosmetic or **skin** or hair care formulations, and the compositions may particularly suitably contain as a carrier a further lipophilic component, e.g. a. . . lipid targetting property of the composition. The Li(C.sub.18-22 PUFA) salts are likely to prove particularly valuable for application to the **skin** because of the rich lipid content of the **skin** and the need for agents acting on the **skin** to move easily from lipid to aqueous phases and vice versa. These water soluble Li(C.sub.18-22 PUFA) salts thus enable essential fatty acids to be delivered to the **skin** in compositions which are particularly cosmetically acceptable and do not feel unduly greasy or oily.

SUMM . . . inactivating lipid-enveloped viruses, such as for example herpetic, pox and wart viruses and other viruses producing pathological effects on the **skin**, and especially sexually transmittable viruses, including viruses transmitting acquired immune deficiency syndrome.

SUMM . . . seborrheic dermatitis mean plasma levels of below 0.025 mM/l are found. Alcoholics, patients with psoriasis, candidiasis, pityriasis and other fungal **skin** infections and sufferers from combination **skin** similarly exhibit depressed lithium plasma levels. Combination **skin** is a troublesome and unsightly complaint manifested by excessive greasiness in certain **skin** areas, such as the forehead and the nose, and excessive dryness in other **skin** areas, such as the sides of the face).

SUMM . . . chemical deficiency, in particular conditions which appear to be associated with immune system malfunction and especially conditions such as combination **skin**, atopic eczema, psoriasis, seborrheic dermatitis, candidiasis, pityriasis, **skin** fungal infections and conditions associated with alcoholism, and the uses and methods of the invention are deemed to relate to. . .

DETD **Skin** and Hair Care Compositions

DETD **Skin** and hair care compositions, such as lotions, creams or shampoos, may be prepared by mixing into a conventional **skin** or hair care composition sufficient lithium gamma-linolenate and lithium eicosapentaenoate to yield a composition containing 5% lithium gamma-linolenate and 3%. . .

DETD

Vitamin A	4000	iU
Vitamin B.sub.1	1	mg
Vitamin B.sub.2	1	mg
Vitamin C	50	mg
Vitamin D	400	iU
Calcium carbonate	5	mg
Lithium eicosapentaenoate	20	mg
Rolled oats ad	30	g

DETD

Vitamin A	4000	iU
Vitamin B.sub.1	1.5	mg
Vitamin B.sub.2	1	mg
Vitamin B.sub.6	1	mg

Vitamin B.sub.3	2	mg
Vitamin C	40	mg
Vitamin D	400	iU
Vitamin E	4	mg
Calcium carbonate	5	mg
Lithium gammalinolenate	50	mg
Iron (II) carbonate	10	mg
Manganese sulphate	1	mg
Nicotinamide	15	mg
Tableting base ad	450.	. .

CLM What is claimed is:

. . . psychosis, schizophrenia, tardive dyskinesia and depression; disorders associated with smooth muscle spasm; diabetes and complications associated therewith; cancers; alcoholism; combination **skin**; and cardiovascular disorders, comprising administering to the body an effective amount of a lithium salt of a C.sub.18-22 polyunsaturated fatty. . .

L3 ANSWER 16 OF 17 USPATFULL

PI US 5252333 19931012 <--

SUMM . . . or proposed for the treatment of several other conditions, such as for example alcoholism, various dementias, aggression, schizophrenia, unipolar depression, **skin** disorders (including contact dermatitis, atopic dermatitis, seborrhoeic dermatitis, psoriasis and acne), immunological disorders, asthma, multiple sclerosis, rheumatoid arthritis, Crohn's disease,. . .

SUMM . . . soluble) may have difficulty entering primarily lipid environments so presenting problems where such entry (e.g. penetration into cells, into the **skin** or across the blood-brain barrier) is desirable, whereas entry of lithium into such lipid environments will be facilitated for lithium. . .

SUMM . . . may advantageously comprise a dressing with impregnated therein a Li(C.sub.18-22 PUFA) salt. Such dressings may be used for application to **skin** lesions with or without occlusion.

SUMM . . . generally be in the form of gels, creams, ointments, sprays, soaps, lotions, shampoo, emulsions or douches, or other cosmetic or **skin** or hair care formulations, and the compositions may particularly suitably contain as a carrier a further lipophilic component, e.g. a. . . lipid targetting property of the composition. The Li(C.sub.18-22 PUFA) salts are likely to prove particularly valuable for application to the **skin** because of the rich lipid content of the **skin** and the need for agents acting on the **skin** to move easily from lipid to aqueous phases and vice versa. These water soluble Li(C.sub.18-22 PUFA) salts thus enable essential fatty acids to be delivered to the **skin** in compositions which are particularly cosmetically acceptable and do not feel unduly greasy or oily.

SUMM . . . inactivating lipid-enveloped viruses, such as for example herpetic, pox and wart viruses and other viruses producing pathological effects on the **skin**, and especially sexually transmittable viruses, including viruses transmitting acquired immune deficiency syndrome.

SUMM . . . seborrheic dermatitis mean plasma levels of below 0.025 mM/1 are found. Alcoholics, patients with psoriasis, candidiasis, pityriasis and other fungal **skin** infections and sufferers from combination **skin** similarly exhibit depressed lithium plasma levels. (Combination **skin** is a troublesome and unsightly complaint manifested by excessive greasiness in certain **skin** areas, such as the forehead and the nose, and excessive dryness in other **skin** areas, such as the sides of the face).

SUMM . . . chemical deficiency, in particular conditions which appear to be associated with immune system malfunction and especially conditions

such as combination **skin**, atopic eczema, psoriasis, seborrheic dermatitis, candidiasis, pityriasis, **skin** fungal infections and conditions associated with alcoholism, and the uses and methods of the invention are deemed to relate to. . .

DETD **Skin** And Hair Care Compositions

DETD **Skin** and hair care compositions, such as lotions, creams or shampoos, may be prepared by mixing into a conventional **skin** or hair care composition sufficient lithium gamma-linolenate and lithium eicosapentaenoate to yield a composition containing 5% lithium gamma-linolenate and 3%. . .

DETD

Vitamin A	4000	iU
Vitamin B.sub.1	1	mg
Vitamin B.sub.2	1	mg
Vitamin C	50	mg
Vitamin D	400	iU
Calcium carbonate	5	mg
Lithium eicosapentaenoate	20	mg
Rolled oats ad	30	g

DETD

Vitamin A	4000	iU
Vitamin B.sub.1	1.5	mg
Vitamin B.sub.2	1	mg
Vitamin B.sub.6	1	mg
Vitamin B.sub.3	2	mg
Vitamin C	40	mg
Vitamin D	400	iU
Vitamin E	4	mg
Calcium carbonate	5	mg
Lithium gammalinolenate	50	mg
Iron (II) carbonate	10	mg
Manganese sulphate	1	mg
Nicotinamide	15	mg
Tableting base ad	450. . .	

L3 ANSWER 17 OF 17 USPATFULL

PI US 5204134 19930420 <--

SUMM . . . understood, it is believed that the allergens cause, upon ingestion or other contact with the body, a specific reagin (or **skin** sensitizing antibody) to be formed in the bloodstream. The ability to produce reagins, chemically identified as IgE, in response to. . .

SUMM . . . type of symptoms. Allergic reactions range from very mild symptoms to death. For example, symptoms, both mild and severe, include **skin** rashes (allergic eczema and urticaria), dermal symptoms, respiratory symptoms (including allergic rhinitis and bronchial asthma), gastrointestinal symptoms, and migraine. Violent. . .

SUMM . . . based upon one quart of mineral salt solution supplemented with carbohydrate, hypoallergenic protein and fat: 400 micrograms of water dispersible **Vitamin D**; 2100 micrograms of water-dispersible **Vitamin A**; 60 milligrams of **Vitamin C** acetate; folic acid; calcium pantothenate; biotin; pyridoxine; **vitamin B.sub.3** ; vitamin K.sub.1 (0.1 mg/l); vitamin B.sub.12 (1.5 mg/l); **vitamin E** (20 .mu.l/l); thiamin (0.60 mg/l); riboflavin (0.6 mg/ml); vitamin B.sub.6 (0.4 mg/ml); minerals such as calcium as phosphate, carbonate or. . .

SUMM . . . mg

Chloride 63 to 65 mg

Iron (fortified)	0.05 to 1.2 mg
Zinc	0.38 to 0.43 mg
Iodine	10 micrograms
Amino Acids	
Methionine	10 micrograms
Cystine	10 micrograms
Vitamins	
Vitamin A (water dispersible)	210 International Units ("I.U.")
Vitamin C (as acetate)	6.0 mg
Vitamin D (water dispersible)	42 I.U.
Vitamin E	1.0 mg
Thiamine	0.04 mg
Riboflavin	0.14 to 0.16 mg
Niacin	0.08 mg
Pyridoxine	0.04 to 0.05 mg
Vitamin B.sub.12	0.32 micrograms
Folic Acid	5.0 micrograms